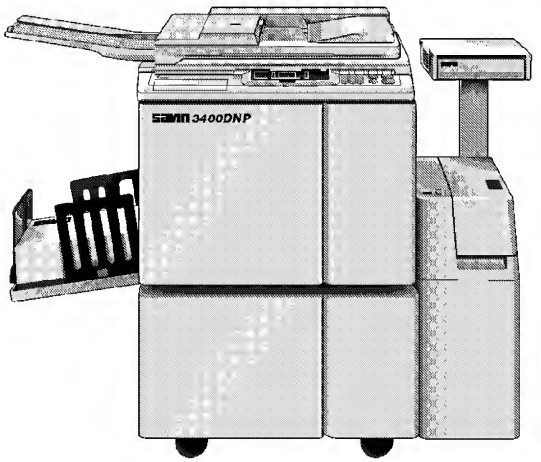
savin®

Digital Duplicator

3400DNP

Operating Instructions



Note to users in the United States of America
Notice:
This equipment has been tested and found to comply with the limits for a Class A digital devise, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning:
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note to users in Canada
Warning:
This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Remarque concernant les utilisateurs au Canada
Avertissement:
Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For good print quality, we recommend you use genuine Savin masters and ink.

We shall not be responsible for any damage or expense that may result from the use of parts other than genuine Savin parts in your Savin office product.

Two kinds of size notation are employed in this manual. With this machine refer to the inch version.

Note: Some illustrations may be slightly different from your machine.

Note: Certain options may not be available in some countries. For details, please contact your local dealer.

In accordance with ISO Standard 7001, this machine uses the following symbols for the main switch:

I means Power on

means STAND BY.

INTRODUCTION

This manual contains detailed instructions on the operation and maintenance of this machine. To get maximum versatility from this machine, all operators should carefully read and follow the instructions in this manual. Please keep this manual in a handy place near the machine.

Please read the next section before using this machine. It contains important information related to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS.

SAFETY INFORMATION

When using your machine, the following safety precautions should always be followed.

Safety During Operation

In this manual, the following important symbols are used:

⚠ ***WARNING:*** *Ignoring this warning could cause serious injury or even death.*

⚠ ***Caution:*** *Ignoring this caution could cause injury or damage to property.*

Example Symbols

- *The ⚠ Symbol means a situation that requires you take care.*

- *Do NOT carry out the operation represented by the ⃠ symbol. This example means "Do not take apart".*

- *The ● Symbol means you MUST perform this operation. This example means "You must remove the wall plug".*

⚠ *WARNINGS:*

- *Only connect the machine to the power source described on page 217 of this manual. Avoid multi-wiring as it could cause an electric shock or a fire.*
- *Avoid using an extension cord.*
- *Do not damage, break or make any modifications to the power cord. Do not place heavy objects on it, pull it hard or bend it more than necessary. These actions could cause an electric shock or fire.*
- *Do not plug or unplug the power cord with wet hands or an electric shock might occur.*

- *Do not remove any covers or screws other than those specified in this manual. Some parts of the machine are at a high voltage and could give you an electric shock. Also, if the machine has laser systems, direct (or indirect) reflected eye contact with the laser beam may cause serious eyes damage. When the machine needs to be checked, adjusted or repaired, contact your service representative.*
- *Do not take apart or attempt any modifications to this machine. There is a risk of fire, electric shock, explosion or loss of sight.*

- *If the machine looks damaged or breaks down, smoke is coming out, there is a strange smell or anything looks unusual, immediately turn off the main power switch then unplug the power cord from the wall. Do not continue using the machine in this condition. Contact your service representative.*
- *If any metal, liquid or foreign matter falls into the machine, turn off the main switch and unplug the main power cord. Contact your service representative. Do not keep using the machine with a fault or defect.*

- *Do not put any metal objects or containers holding water (e.g. vases, flowerpots, glasses) on the machine. If the contents fall inside the machine, a fire or electric shock could occur.*

- *Make sure the wall outlet is near the machine and freely accessible so that in event of an emergency it can be unplugged easily.*

⚠ *Cautions:*

- *When you move the machine, unplug the power cord from the wall outlet to avoid fire or electric shock.*
- *When the machine will not be used for a long time, unplug the power cord.*

- *When you pull out the plug from the socket, grip the plug to avoid damaging the cord and causing fire or electric shock.*

- *Keep the machine away from humidity and dust. A fire or an electric shock might occur.*
- *Do not place the machine on an unstable or tilted surface. If it topples over it could cause injury.*
- *Do not reuse stapled paper. Do not use aluminum foil, carbon-containing paper or other conductive paper. Otherwise, a fire might occur.*

- *This machine has been tested for safety using this supplier's parts and consumable. We recommend you only use these specified supplies.*
- *This equipment is only to be installed by a qualified service personnel.*
- *Deliver to collection point for waste products. Do not be disposed of via domestic refuse collection.*

- *After you move the machine, fix it with the caster fixture. Otherwise, the machine might move or come down to cause a personal injury.*
- *If you use this machine in a confined space, make sure there is a continuous air turnover.*
- *If ink comes into contact with your eyes, rinse immediately in running water. In the case of any abnormal symptoms, consult a doctor.*
- *Keep the ink or ink container out of reach of children.*
- *If ink is ingested, force vomiting by drinking a strong saline solution and consult a doctor immediately.*

- *Be careful not to cut yourself on any sharp edges when you reach inside the machine to remove misfed sheets of paper or masters.*
- *When the master cut button is pressed, the master roll will rotate. Do not touch the master roll. You may be injured.*
- *Do not touch the belt at the end of the paper delivery table. Do not insert your hands under the paper feed table or the paper delivery table. You may be injured.*
- *Do not insert your hand between sorter bins during printing or stapling using the optional sorter stapler. You may be injured.*
- *Do not put your hands under the master eject unit during printing or stapling using the optional sorter stapler.*

Section 1

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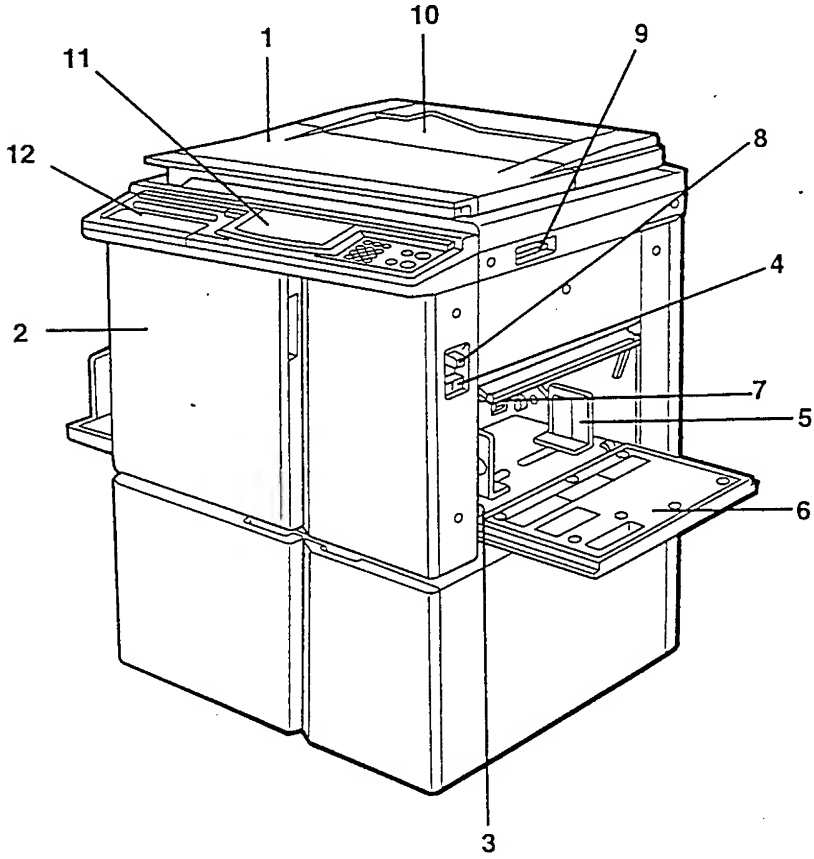
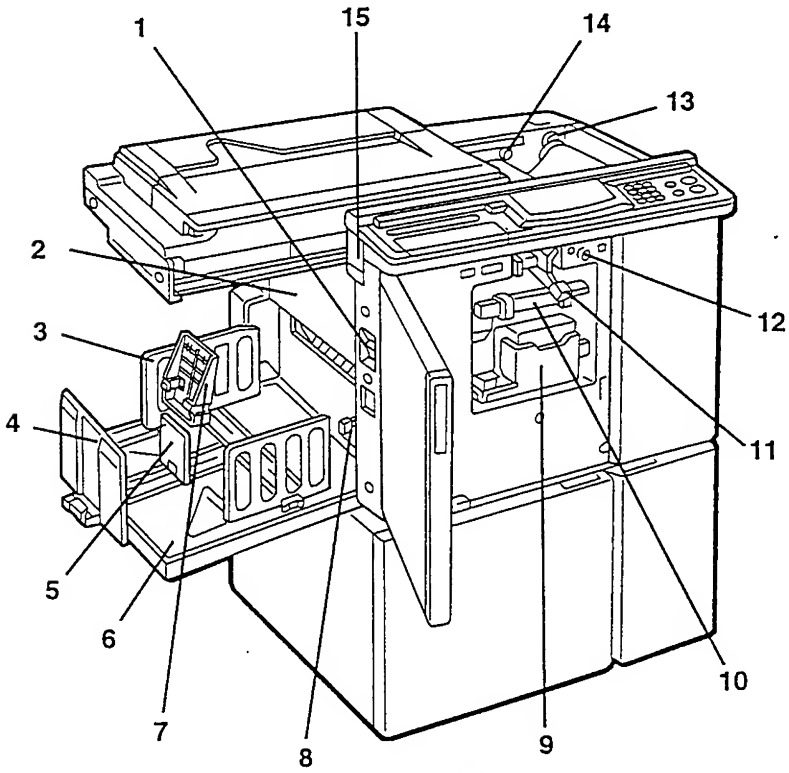
GUIDE TO COMPONENTS

Machine Exterior



1. Platen Cover	Lower this cover over an original before printing.
2. Front Door	Open for access to the inside of the machine.
3. Side Plate Fine Adjusting Dial	Use to shift the paper feed table sideways.
4. Paper Feed Table Down key	Press to lower the paper feed table.
or Change Paper key	When you have an optional large capacity tray, this key is used to remove paper.
5. Paper Feed Side Plates	Use to prevent paper skew.
6. Paper Feed Table	Set paper on this table for printing.
7. Separation Roller Pressure Levers	Use to adjust the separation roller pressure to prevent double feed.
8. Feed Roller Pressure Lever	Use to adjust the contact pressure of the paper feed roller according to paper thickness.
9. Original Table Release Lever	Use to open the original table unit when installing the master.
10. Original Holder	Convenient place for holding originals while operating the machine.
11. Operation Panel	Operator controls and indicators are located here. ☛ See page 6.
12. Behind Cover	Open to access the **CS Mode** key and so on. ☛ See page 6.

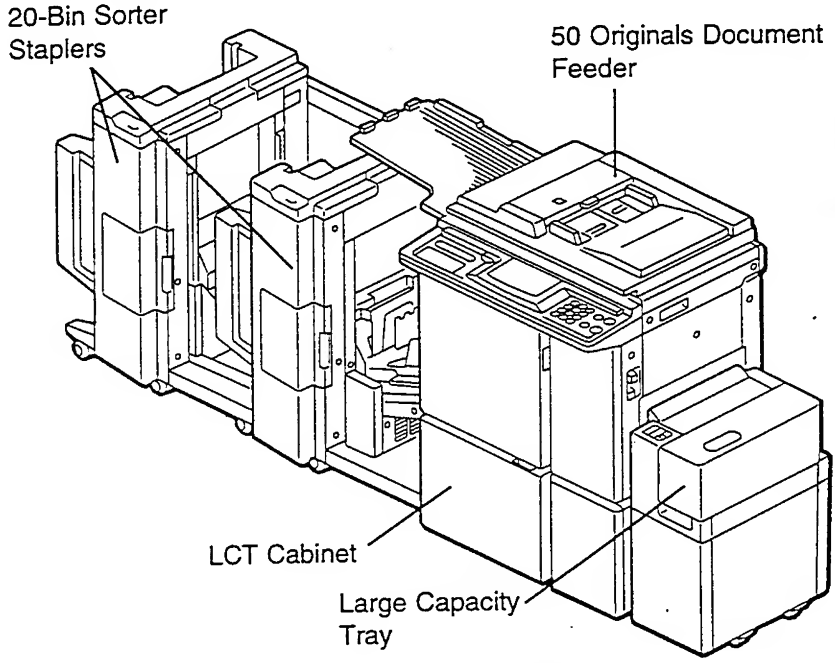
Machine Interior



1. **Main Switch**	Use to turn the power on or off.
2. **Master Eject Container Cover**	Open when removing the master eject box.
3. **Paper Delivery Side Plates**	Use to align the prints on the paper delivery table.
4. **Paper Delivery End Plate**	Use to align the leading edge of prints larger than A4, 8 1/2" x 11".
5. **Small Size Paper Delivery End Plate**	Use to align the leading edge of prints that are A4, 8 1/2" x 11" or smaller.
6. **Paper Delivery Table**	Completed prints are delivered here.
7. **Small Size End Plate Prop**	When the prints A4, 8 1/2" x 11" or smaller are not delivered properly, set this prop.
8. **Wing Guide Release Lever**	Push it up when you print on A3, 11" x 17" or larger paper.
9. **Ink Holder**	Set the ink cartridge in this holder.
10. **Drum Unit**	The master is wrapped around this unit.
11. **Drum Unit Lock Lever**	Lift to unlock and pull out the drum unit.
12. **Drum Rotation Button**	Press to rotate the drum unit.
13. **Pressure Release Lever**	Use to install the master roll.
14. **Master Cut Button**	Press this button to cut the master leading edge after installing a new master roll.
15. **Master Eject Unit Open Button**	Press to remove misfed paper or a misfed master.

Options

This machine can be provided with the following options:



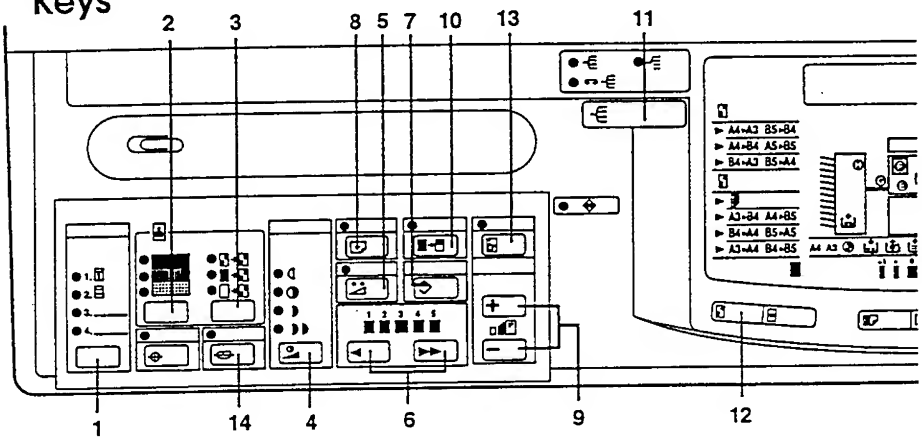
*Other options:

- 20 Originals Document Feeder
- Color Drums
  - A3 drum (red, blue, green, brown, yellow, purple, navy, and maroon)
  - A4 drum (black, red, blue, green, brown, yellow, purple, navy, and maroon)
- Tape Dispenser
- Key Counter
- Cabinet
- Make-up

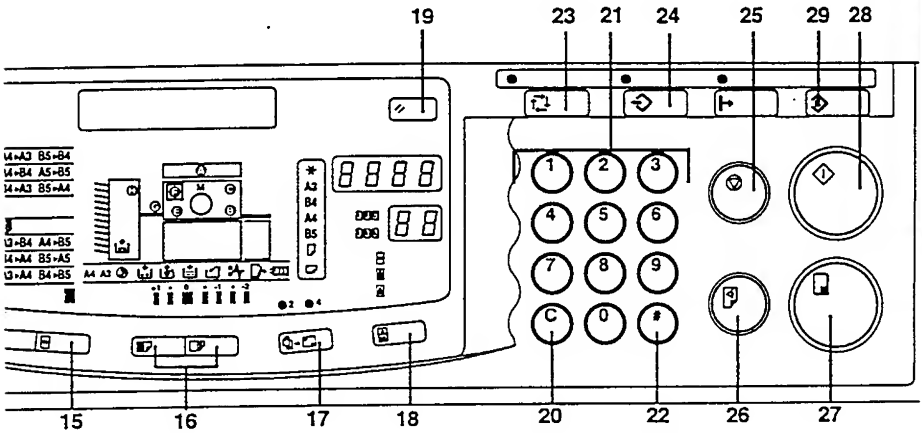
- If you have sorter staplers and you want to have a document feeder, the 50 originals document feeder should be equipped with your machine.
- Sorter staplers and a tape dispenser cannot be equipped together.

Operation Panel

Keys



1. **CS Mode key**
   ☛ See pages 69 and 118.
2. **Screen key**
   Press to select the screen image.
   ☛ See page 44.
3. **Contrast key**
   Press to select the contrast. ☛ See page 44.
4. **Image Density key**
   Press to make prints darker or lighter.
   ☛ See page 25.
5. **Economy Mode key**
   Press to save ink. ☛ See page 45.
6. **Speed keys**
   Press to adjust the printing speed.
   ☛ See pages 25 and 26.
7. **Memory/Class key**
   Press to select Memory or Class mode. ☛ See pages 48 and 51.
8. **Skip Feed key**
   Press to select skip feed printing.
   ☛ See page 60.
9. **Zoom up/down keys**
   Press to alter the reproduction ratio in 1% increments from 50% to 200%. ☛ See page 32.
10. **Margin Erase key**
    Press to print book originals that have a solid image on the edges.
    ☛ See page 39.
11. **Sort key (for the optional sorter stapler)**
    Press to select Sort, Staple Sort, or Class Sort mode. ☛ See page 81.
12. **Reduce/Enlarge key**
    Press to reduce or enlarge the image. ☛ See page 28.
13. **Directional Magnification key**
    Press to specify a different reproduction ratio for each direction. ☛ See page 33.
14. **Make Up key**
    Press to use the optional Make-up function. ☛ See section 2.



15. Full Size key
Press to make full size prints.

16. Image Position keys
Press to shift the image forwards or backwards. ☛ See page 23.

17. Multi Copy key
Press to combine originals onto 1 print. ☛ See pages 55 and 74.

18. Image Mode key
Press to select Line, Photo, or Line/Photo mode. ☛ See page 43.

19. Reset key
Press to reset error indicators. ☛ See page 172.

20. Clear key
Press to change the number set in the counter.

21. Number keys
Press to enter the number of prints and data.

22. Enter key
Press to input data into memory.

23. Auto Cycle key
Use to process the master and make prints automatically. ☛ See page 46.

24. Program key
Press to input or recall user programs. ☛ See page 62.

25. Stop key
Press to stop the machine operation.

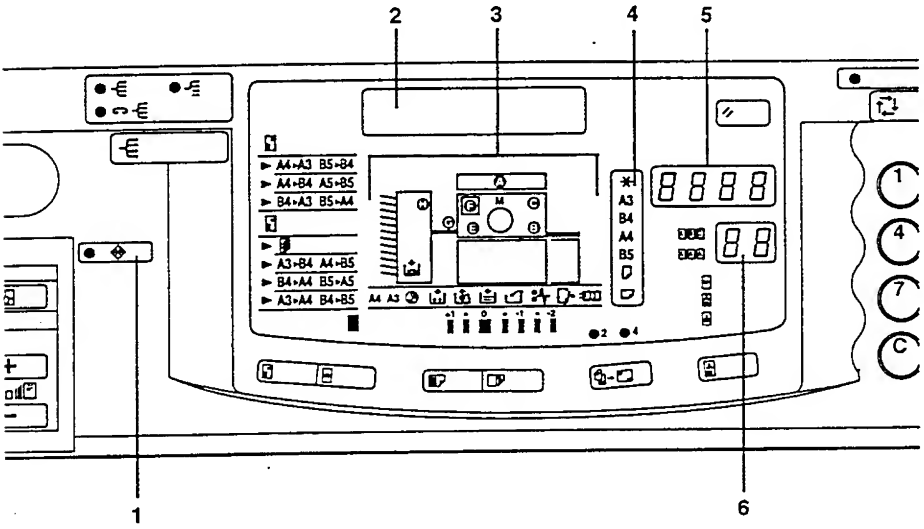
26. Proof key
Press to make proof prints.

27. Print Start key
Press to start printing.

28. Master Making key
Press to make a master.

29. Clear Modes key
Press to cancel all previously entered settings.

Indicators



1. **Special Feature indicator**
   This indicator is lit when you press keys under the cover on the operation panel.
2. **Guidance Display**
   Displays the machine's condition.
3. **Monitors**
   The monitors light up or blink when a non-standard condition occurs within the machine. ☛ See page 165.
4. **Paper Size And Direction indicators**
   Indicates print paper size and direction.
5. **Counter**
   Displays the number of prints entered. While printing, it shows the number of prints remaining.
6. **Memory/Class indicator**
   Shows the number entered in Memory mode or Class mode.

INSTALLATION REQUIREMENTS

The machine's location should be carefully chosen because environmental conditions can affect its performance.

⚠ ***WARNING:*** ***Make sure the wall outlet is near the machine and freely accessible so that in event of an emergency it can be unplugged easily.***

⚠ ***WARNING:*** ***Do not put any metal objects or containers holding water (e.g. vases, flowerpots, glasses) on the machine, a fire or electric shock could occur.***

⚠ *Caution:* *Keep the machine away from humidity and dust. A fire or an electric shock might occur.*

⚠ *Caution:* *Do not place the machine on an unstable or tilted surface. If it topples over it could cause injury.*

Optimum Environmental Conditions

- Temperature: 10 – 30°C, 50 – 86°F
- Humidity: 20 – 90% RH
- A strong and level base (a sturdy desk and cabinet etc.).
- The machine must be level within 5 mm, 13/64" both front to rear and left to right.
- Make sure to locate this machine in a large well ventilated room that has an air turnover of more than 30 m^3/hr/person.

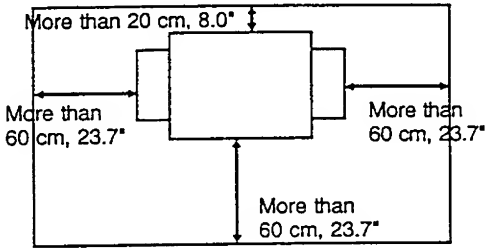
Environments To Avoid

- Direct sunlight or strong light (more than 1500 lux).
- Locations directly exposed to cool air from an air conditioner or heated air from a heater. (Sudden temperature changes from low to high or vice versa may cause condensation within the machine.)
- Dusty areas.
- Places where the machine might be subjected to frequent strong vibration.

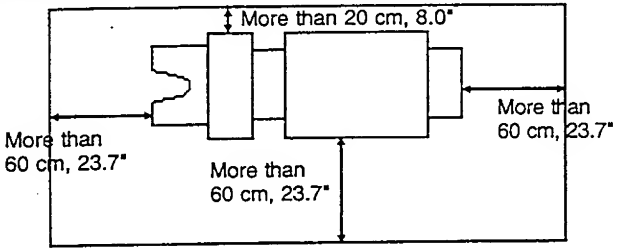
Access To The Machine

- Place the machine near a power source, providing clearance as shown.

Main Frame



Main Frame With Optional Sorter Stapler



Power Connection

Main Frame

⚠ *WARNING: Only connect the machine to the power source described on page 217 of this manual. Avoid multi-wiring as it could cause an electric shock or a fire.*

⚠ *WARNING: Avoid using an extension cord.*

⚠ ***WARNING:*** ***Do not damage, break or make any modifications to the power cord. Do not place heavy objects on it, pull it hard or bend it more than necessary. These actions could cause and electric shock or fire.***

⚠ ***WARNING:*** ***Do not plug or unplug the power cord with wet hands or an electric shock might occur.***

⚠ *Caution:* *When you pull out the plug from the socket, grip the plug to avoid damaging the cord and causing fire or electric shock.*

⚠ *Caution:* *When the machine will not be used for a long time, unplug the power cord.*

- ☐ Make sure the plug is firmly inserted in the outlet.

Optional Sorter Stapler

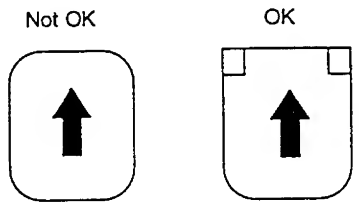
⚠ ***WARNING:*** ***Only connect the machine to the power source described on page 221 of this manual. Avoid multi-wiring as it could cause an electric shock or a fire.***

- ☐ The socket out-let must be near this equipment and easily accessible.

OPERATION

Printing Paper

- ❒ The following types of print paper are not recommended for this machine.
  - Paper smaller than 90 mm x 148 mm, 3.6" x 5.9"
  - Paper larger than 297 mm x 432 mm, 11.6" x 17.0"
  - Paper heavier than 209.3 g/m^2, 55.6 lb
  - Paper lighter than 47.1 g/m^2, 12.5 lb
  - Roughly-cut paper
  - Paper of different thickness in the same stack
  - Buckled or curled paper
  - Short grain paper
- ❒ A3 (297 x 420 mm), 11" x 17", originals or printing paper can be used but the maximum print area is 290 x 412 mm, 11.4" x 16.2". Select Reduce mode when you want to print the entire image of an A3, 11" x 17" original.
- ❒ Correct curls in the paper before setting it in the machine. When you cannot correct the paper curl, stack the paper with the curl face down. Otherwise the paper might wrap around the drum or stains might appear.
- ❒ Use low stiffness paper under the following conditions:
  - Temperature: Less than 30°C, 86°F
  - Humidity: Less than 80 %
  - Load less than 500 sheets of paper at a time on the paper feed table.
- ❒ Store paper where it will not curl or absorb moisture. Use paper soon after it is unpacked.
- ❒ Only use paper where the leading edge has two right angle corners, as shown below.



Originals

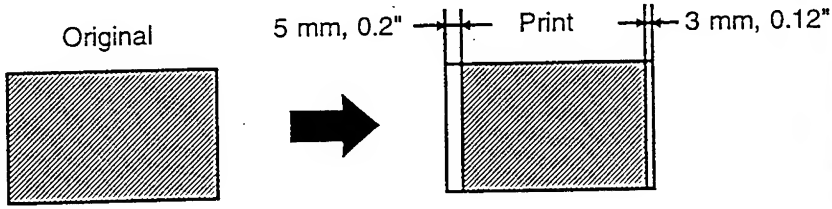
- Under the following conditions, the machine might not detect the original on the exposure glass. If you press the **Master Making** key again, the machine will start making a master anyway.
  - When you set a dark original on the exposure glass.
  - When the original is not centered according to the size marks on the left scale.
  - If you do not open the platen cover at an angle of more than 25 degrees with the exposure glass when you replace originals.
  - If the machine is installed under a strong light.

- The maximum original size you can set on the exposure glass is 307 x 432 mm, 12" x 17".

- If you use paste-up originals, make sure the pasted parts hold firmly to the base sheet. If the thickness of the paste-up original is more than 0.2 mm, 2/250" and the space between the pasted parts is less than 2 mm, 2/25", a shadow might appear on the prints.

- If you use originals that have bold letters or solid images at the leading edges, you might get prints with dirty edges. In this case, set the original face down with the widest margin toward the paper delivery table.

- The first 5 mm, 0.2" of the leading edge and the last 3 mm, 0.12" of the trailing edge cannot be printed. Make sure the leading edge margin is at least 5 mm, 0.2" and the trailing edge margin is at least 3 mm, 0.12".

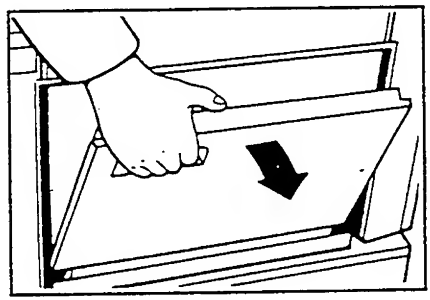


Preparation For Printing

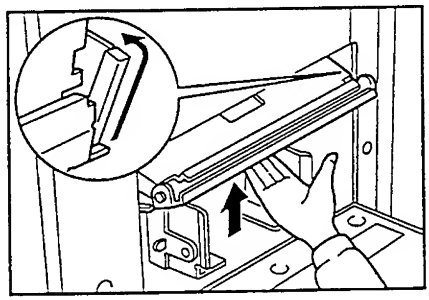
- ☐ ☛ See page 96 when you load paper in the optional large capacity tray.
- ☐ ☛ See page 102 when you load paper in the optional paper cassette for LCT.

Loading paper

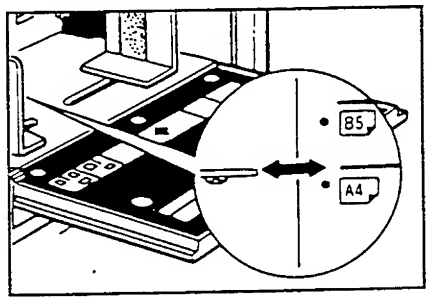
1. Carefully open the paper feed table.



2. Push the paper feed plate up.

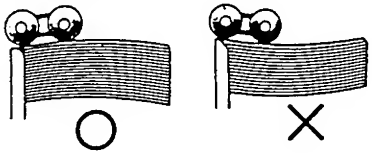


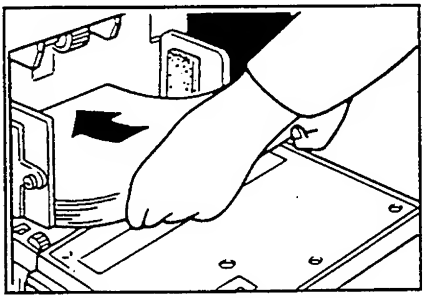
3. Adjust the side plates to match the paper size.



4 Place the paper on the paper feed table.

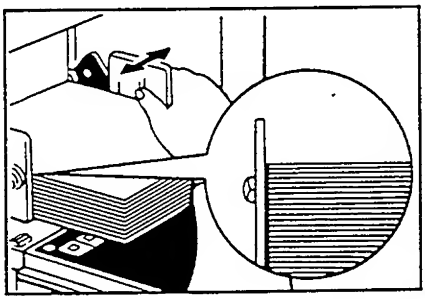
- Correct the paper curl before setting the paper. If you cannot do so, stack the paper with the curl face down as shown.





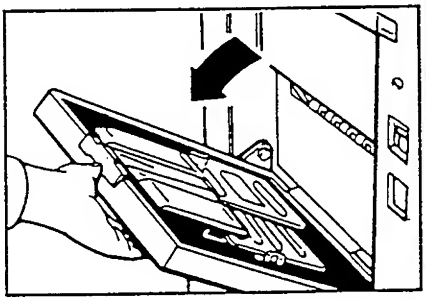
5 Make sure that the paper feed side plates contact the paper lightly.

- Make sure that the Paper Size And Direction indicator of the actual paper size set on the paper feed table is lit.



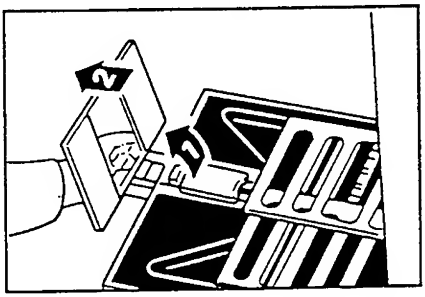
Setting up the paper delivery table

6 Open the paper delivery table.

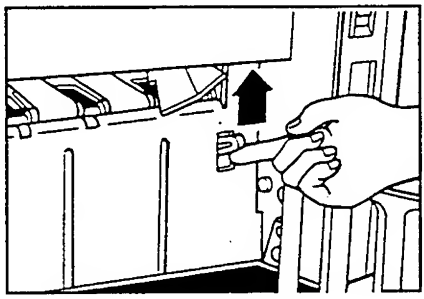


7 Lift the paper delivery end plate and move it to match the print paper size.

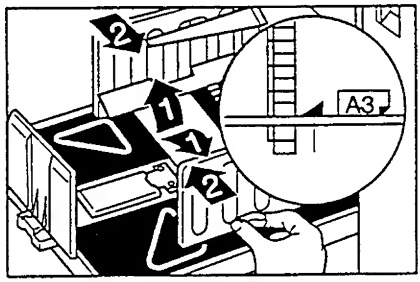
- When you use A3, 11" x 17" paper, pull out the end plate until it stops.



8 If printing on A3, 11" x 17", or larger paper, push up the wing guide release lever. If you want to print on paper smaller than A3 or 11" x 17", push down the release lever.

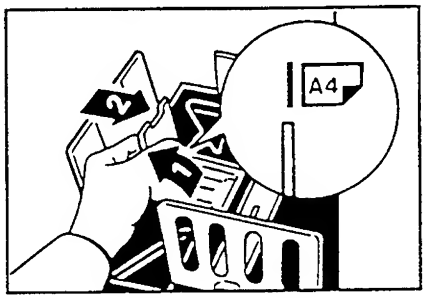


9 Lift the paper delivery side plates and adjust them to the paper size.

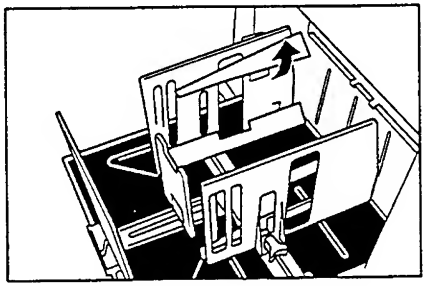


10 If you want to use A4, 8 1/2" x 11" or smaller paper, lift the small size paper delivery end plate and move it to match the print paper size.

- When you use B4, 8 1/2" x 14" or larger size paper, you do not need to lift the small size paper delivery end plate.

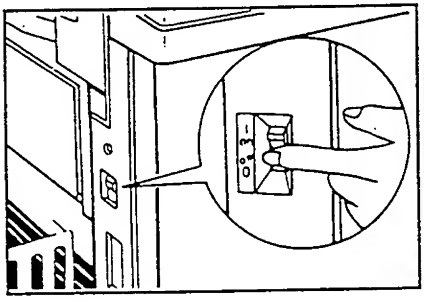


11 If necessary, lift the left and right guides.



- If you find paper is not delivered properly when printing on thin paper, make sure the guides are up.
- When prints are not delivered properly even If the guides are up, set the paper delivery side plates 5 mm inside of the proper paper size.
- When printing on paper thicker than 81.4 g/m^2, 21.6 lb, do not lift up the guides.
- When printing on paper smaller than A4, 8 1/2" x 11", set the small paper end plate prop.
- When the guides are up, you may not load the unit to full capacity (1,000 sheets) depends on the paper you are using.
- If you have the optional tape dispenser installed, the paper capacity is 500 sheets.

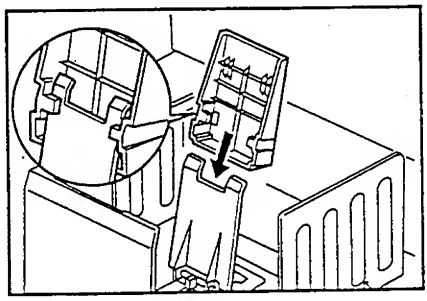
12 Turn on the main switch.



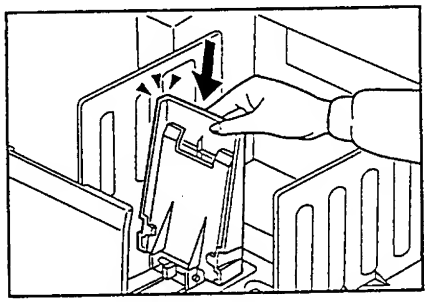
Setting the small size end plate prop

If A4, 8½" x 11" or smaller paper is not delivered to the paper delivery table properly, set the small size end plate prop to the small size paper delivery end plate.

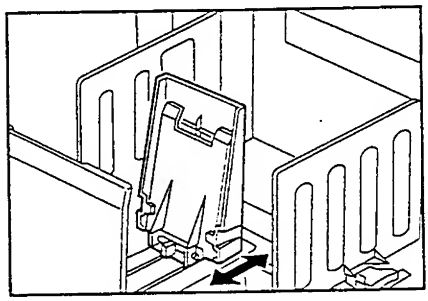
1. Set the small size end plate prop to the small size paper delivery end plate as shown in the illustration.



2. Slide the prop until it locks in position.

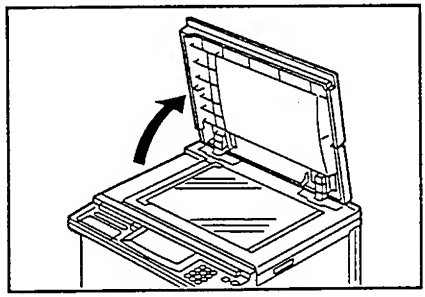


3. Adjust the main frame side of the prop to match the paper size.

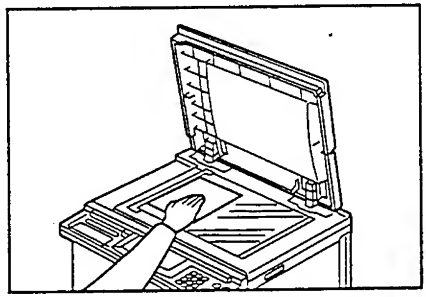


Standard Printing

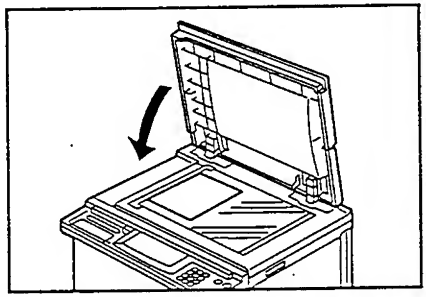
1 Open the platen cover.



2 Place the original face down on the exposure glass. The original should be centered according to the size marks on the left scale.

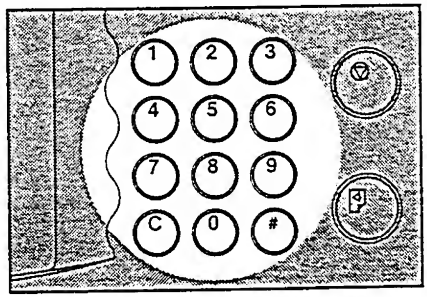


3 Lower the platen cover.



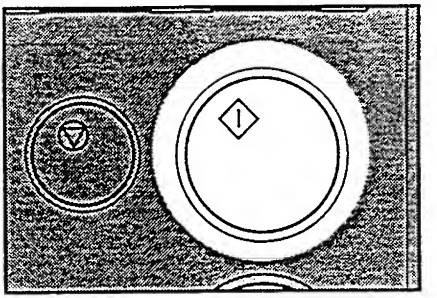
4 Enter the number of prints required using the **Number** keys.

- Up to 9999 prints can be entered at one time.
- To change the number entered, press the **Clear** key and then enter the new number.



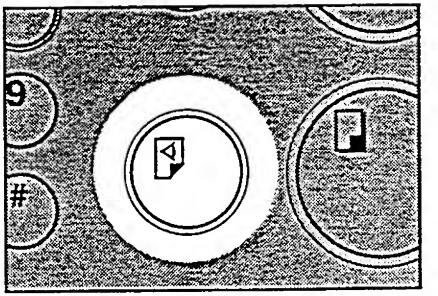
5 Press the **Master Making** key.

- A trial print is delivered to the paper delivery table.



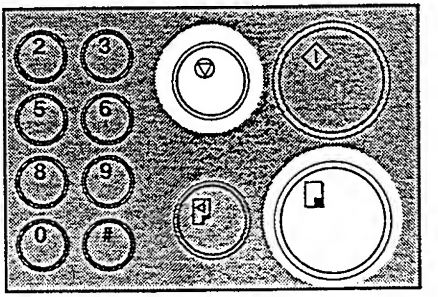
6 Press the **Proof** key and check the image density and the image position of the proof print.

- If the image position is not correct, adjust it using the **Image Position** keys or the fine adjustment dial. (☛ See pages 23 and 24.)
- If the image density is slightly dark or light, adjust the image density by pressing the **Speed** keys. (☛ See page 26.)



7 Press the **Print Start** key.

- After printing is completed, the same number of prints is automatically set for the next job.
- If you want to stop the machine during a print run, press the **Stop** key.



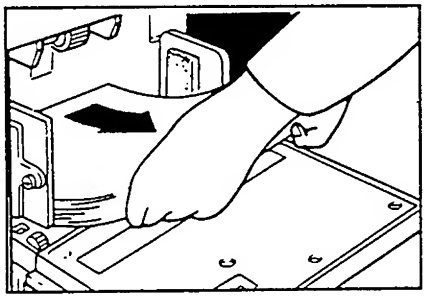
8 Remove the prints from the paper delivery table.

- To clear all the modes you have selected, press the **Clear Modes** key.
- If A4, 8 1/2" x 11" or smaller paper is not delivered to the paper delivery table properly, set the small size end plate prop to the small size paper delivery end plate. ☛ See page 18.
- When the prints are thrown over the paper delivery table, ☛ see page 203.

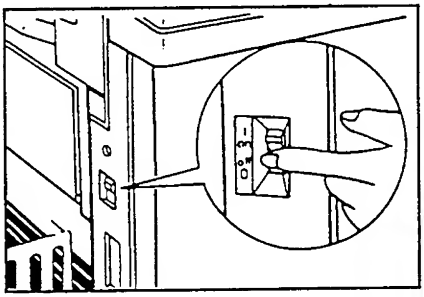
Restoring Paper Feed And Paper Delivery Tables

1 Remove the paper from the paper feed table.

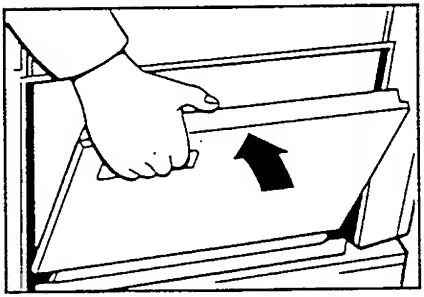
- The paper feed table will lower.



2 Turn off the main switch.



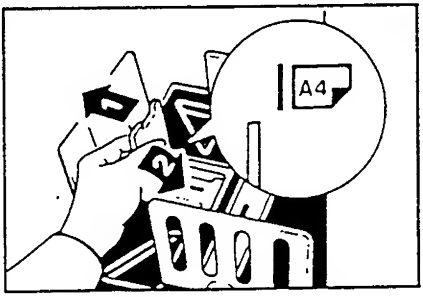
3 Push the paper feed plate down and close the paper feed table.



4 Push the small size paper delivery plate to the left, then lower it, if necessary.

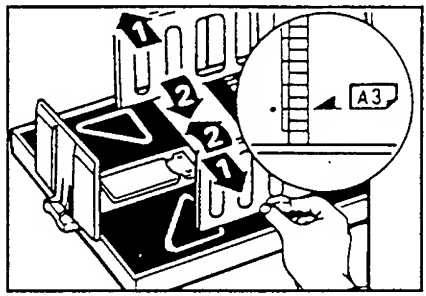
Return the left and right guides to their original positions, if necessary.

- If the small size end plate prop is set, remove it.

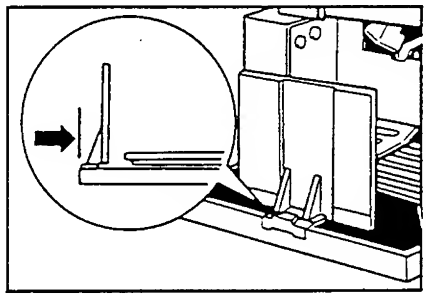


5 Move the side plates to the sides, then lower them.

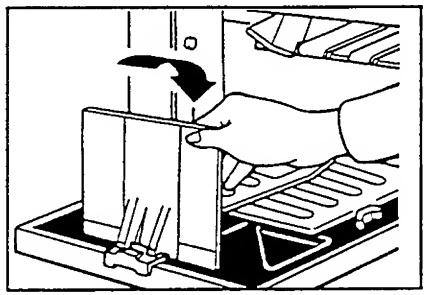
- Make sure that the side plates do not touch the small size paper delivery end plate.



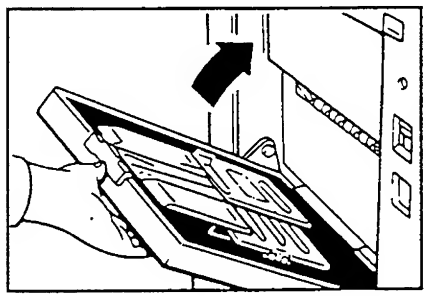
6 Move the end plate until the plate handle is flush with the end of the table.



7 Lower the end plate.

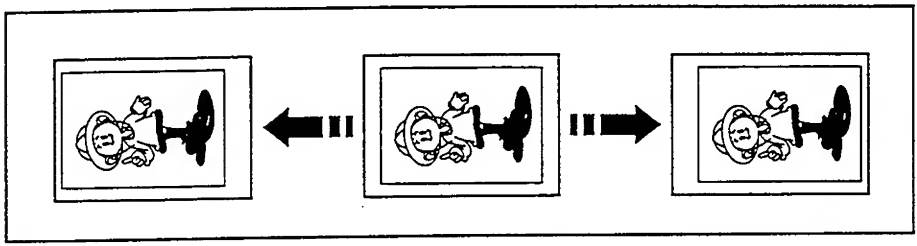


8 Close the table.

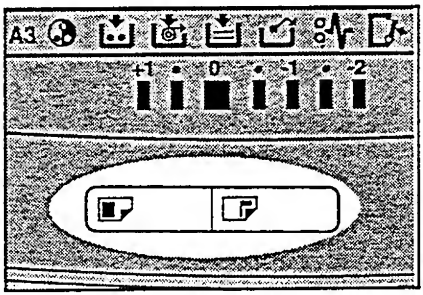


Adjusting The Image Position

Shifting the image position forward or backward

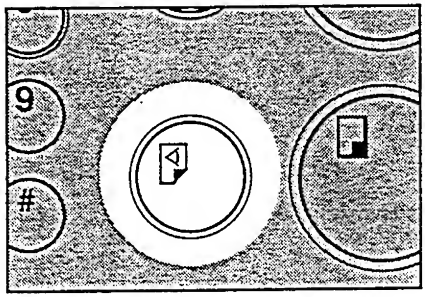


1 Press the right **Image Position** key to move the image forwards, the left key to move it backwards.



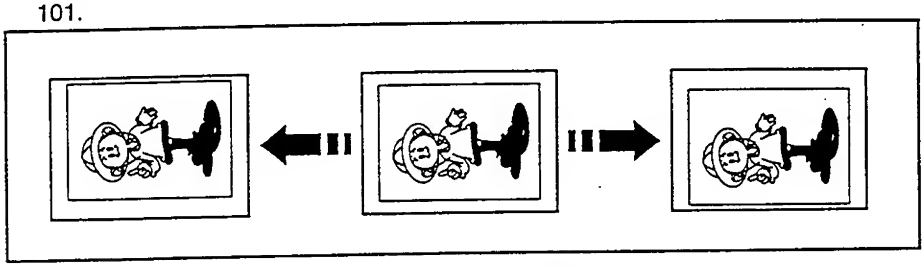
- When you shift the image forwards, leave a margin (more than 5 mm, 0.2") at the leading edge. If there is no margin, paper might wrap around the drum and cause a misfeed.
- The right or left **Image Position** keys shift the image about 0.5 mm, 1/50" each time they are pressed. When the indicator changes, the image position shifts about 5 mm, 1/5".

2 Press the **Proof** key. Check the image position again.



Shifting the image to the right or left

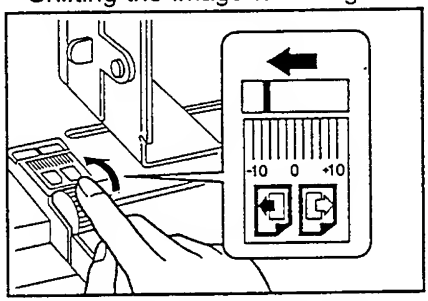
- If your machine is equipped with the optional large capacity tray, ☛ see page 101.



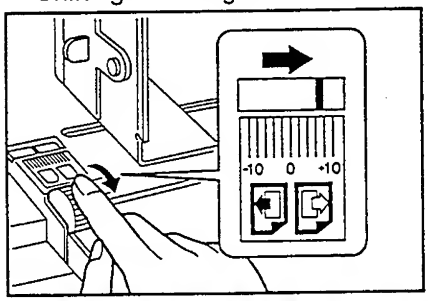
1 Turn the side plate fine adjusting dial as shown in the illustrations.

- The image position can be shifted up to about 10 mm, 2/5" each way. Each division on the scale is 2 mm, 0.08".
- If your machine is equipped with the optional sorter stapler, the image position is shifted to 3 mm, 0.12" for each division on the scale.

Shifting the image to the right

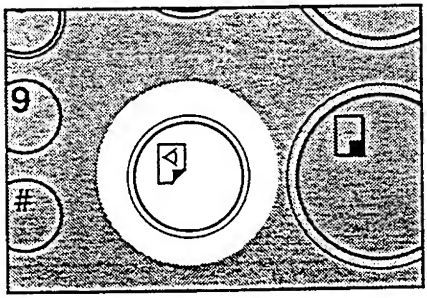


Shifting the image to the left



2 Adjust the paper delivery side plates to the print paper position.

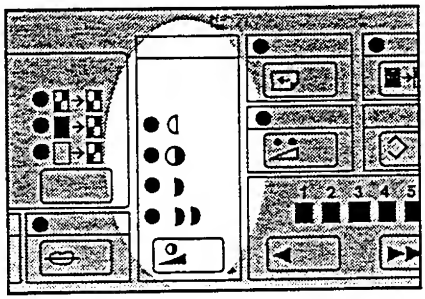
3 Press the **Proof** key. Check the image position.



Adjusting The Image Density

Before making a master

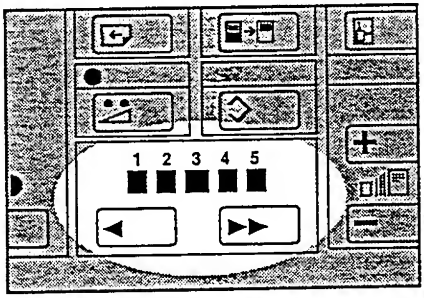
1 Use the **Image Density** key before pressing the **Master Making** key.



After making a master

1 Press the **Speed** keys. To increase the speed, press the "▶▶" key. To reduce the speed, press the " ◀ " key.

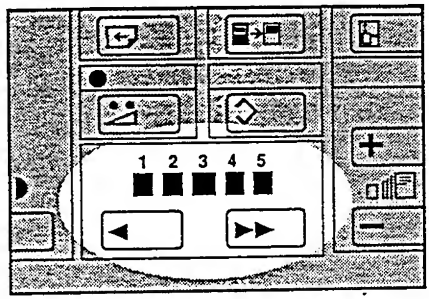
- The faster the printing speed becomes, the lighter the printing density is. If you want darker prints, decrease the printing speed.
- If you use the Sort, Staple Sort, or Class Sort function, the setting should be Setting 1.



Changing The Printing Speed

Use the **Speed** keys to adjust the speed of the machine with the image density and printing paper.

Press the **Speed** keys. To increase the speed, press the "▶▶" key. To reduce the speed, press the " ◀ " key. The printing speed will be changed as follows:



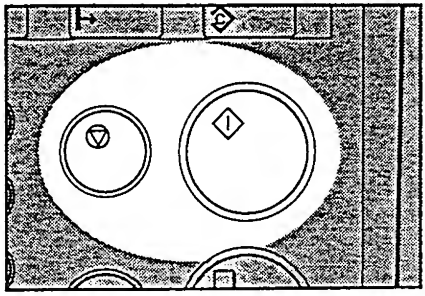
Setting 1: 60 sheets/minute
Setting 2: 75 sheets/minute
Setting 3: 90 sheets/minute
Setting 4: 105 sheets/minute
Setting 5: 120 sheets/minute

- When the main switch is turned on, Setting 3 is selected.
- The faster the printing speed becomes, the lighter the printing density is, and vice versa.
- If you use the Sort, Staple Sort, or Class Sort function, the setting should be Setting 1.

Stopping The Machine During A Print Run

When you want to stop the machine during a print run and print the next original

1. Press the **Stop** key.
2. Set the new original.
3. Enter the number of prints and press the **Master Making** key.

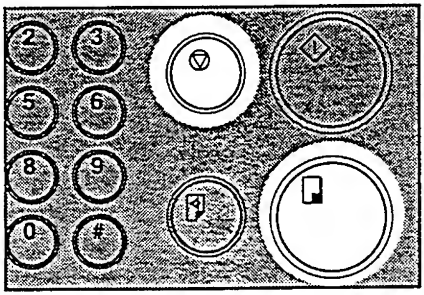


When you want to change the number of prints entered or check the completed prints

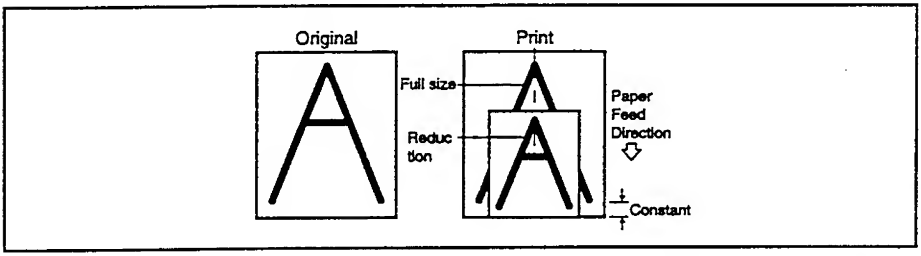
1. Press the **Stop** key.
2. Change the number of prints or check the completed prints.

- When you change the number of prints, you can re-enter the number using the **Number** keys after pressing the **Stop** key.

3. Press the **Print Start** key.

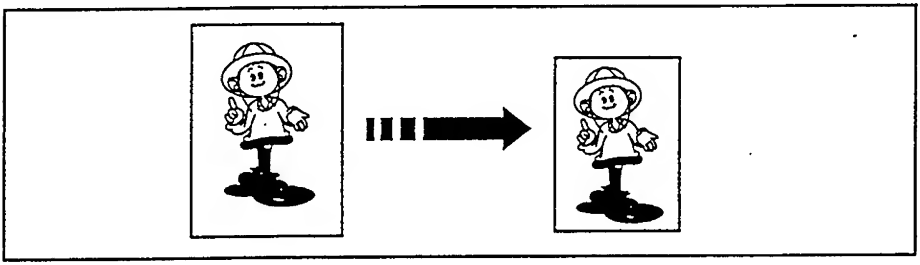


Reduction/Enlargement Printing



❒ The center and the leading edge of the print image do not shift when a print image is made with this function.

Reduction



Prints can be reduced in size by using the **Reduce/Enlarge** key.

— Metric version —

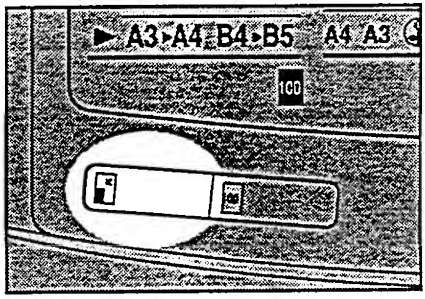
Reduction Ratio	Original Size	Print Size
93 %	*	
87 %	A3	B4
	A4	B5
82 %	B4	A4
	B5	A5
71 %	A3	A4
	A4	A5
	B4	B5

— Inch version —

Reduction Ratio	Original Size	Print Size
93 %	*	
77 %	8 1/2" x 14"	8 1/2" x 11"
74 %	11" x 15"	8 1/2" x 11"
65 %	11" x 17"	8 1/2" x 11"
	8 1/2" x 11"	5 1/2" x 8 1/2"

* Select this ratio when you make prints with a lot of edge margins.

1 Select the desired reduction ratio using the **Reduce/Enlarge** key.

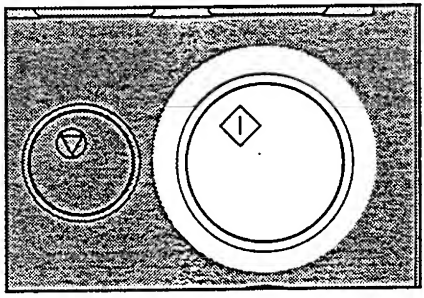


2 Make sure that the original and the print paper are the correct size.

3 Set your original on the exposure glass or in the optional document feeder.

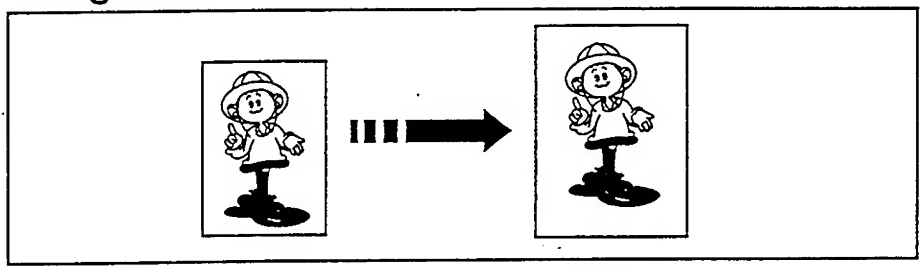
4 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).



5 Make your prints.

Enlargement



Prints can be enlarged by using the **Reduce/Enlarge** key.

— Metric version —

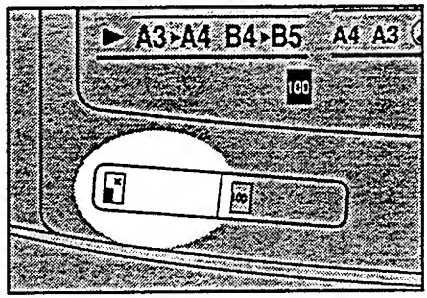
Enlargement Ratio	Original Size	Print Size
141 %	A4	A3*
	A5	A4
	B5	B4
	B6	B5
122 %	A4	B4
	A5	B5
115 %	B4	A3*
	B5	A4
	B6	A5

— Inch version —

Enlargement Ratio	Original Size	Print Size
155 %	5 1/2" x 8 1/2"	8 1/2" x 14"
129 %	8 1/2" x 11"	11" x 17"
	5 1/2" x 8 1/2"	8 1/2" x 11"
121 %	8 1/2" x 14"	11" x 17"

* Some part of the image on the trailing edge might not appear. To print the entire image, adjust the enlargement ratio with the **Zoom up/down** keys.

1 Select the desired enlargement ratio using the **Reduce/Enlarge** key.

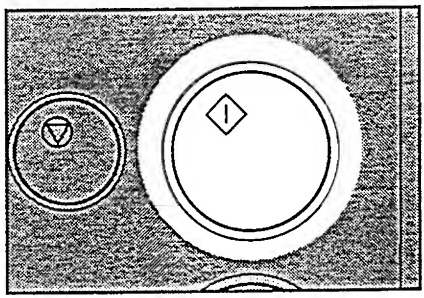


2 Make sure that the original and the print paper are the correct size.

3 Set your original on the exposure glass or in the optional document feeder.

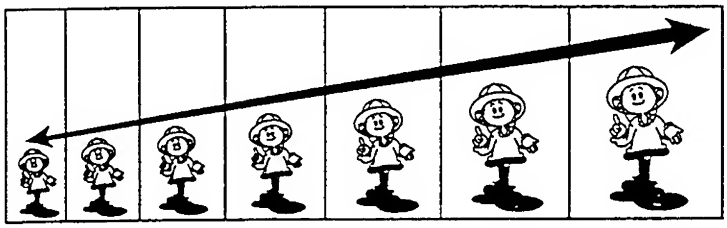
4 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).



5 Make your prints.

Zoom

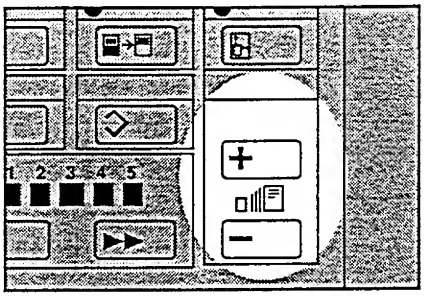


In this mode, the reproduction ratio can be changed from 50 % to 200 % in 1 % steps.

- Depending on the reproduction ratio and print paper size, some part of the image might not be printed or you might get prints with a lot of margins.

1 Press the **Zoom down** (-) key repeatedly to reduce the ratio in 1 % steps.

Or, press the **Zoom up** (+) key repeatedly to increase the ratio in 1 % steps.

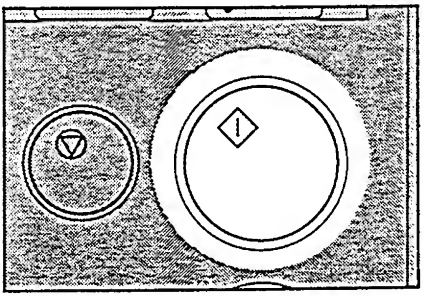


2 Make sure that the original and the print paper are the correct size.

3 Set your originals on the exposure glass or in the optional document feeder.

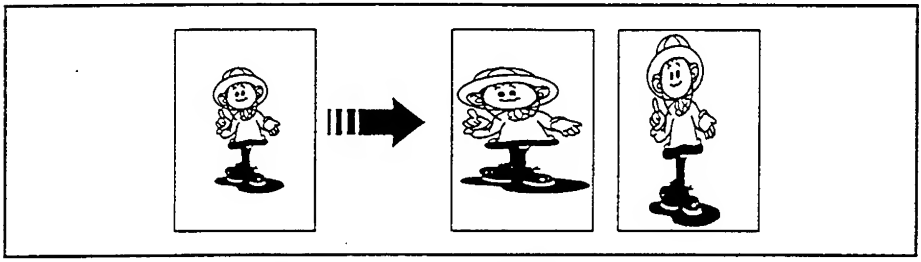
4 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).



5 Make your prints.

Directional Magnification Printing

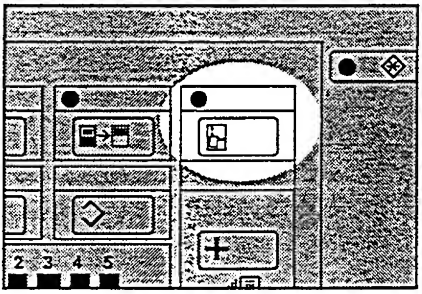


You can select independent ratios for vertical and horizontal directions.

- If you do not know the proper reproduction ratios, you can use SP mode to enter the size of the original and print paper (☛ See page 136). The machine will then select the proper reproduction ratios and you can make prints.
- Depending on the reproduction ratio and print paper size, some part of the image might not be printed or you might get prints with a lot of margins.

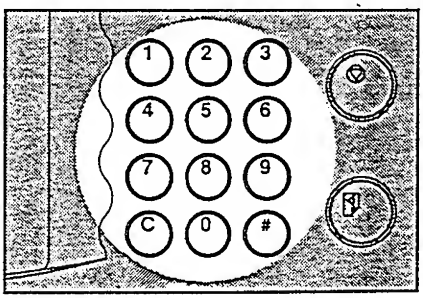
When you enter the reproduction ratios

1. Press the **Directional Magnification** key.

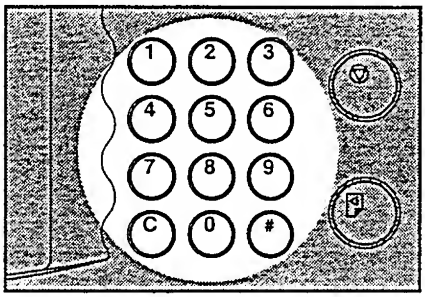


2. Enter the desired reproduction ratio for the vertical direction using the **Number** keys.

3. Press the **Enter** key.



4 Enter the desired reproduction ratio for the horizontal direction using the **Number** keys.



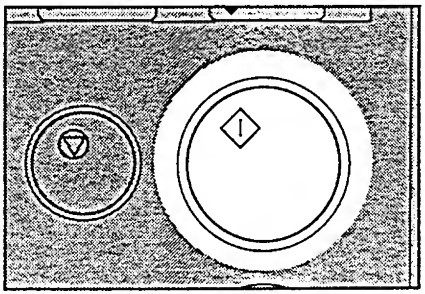
5 Press the **Enter** key.

6 Make sure that the original and the print paper are the correct size.

7 Set your original on the exposure glass or in the optional document feeder.

8 Press the **Master Making** key. Check the image position of the trial or proof print.

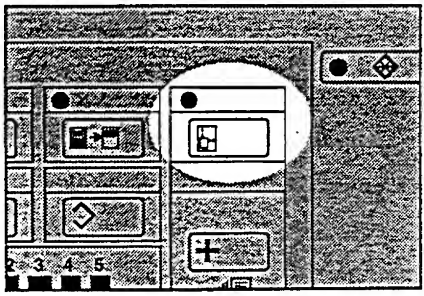
- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).



9 Make your prints.

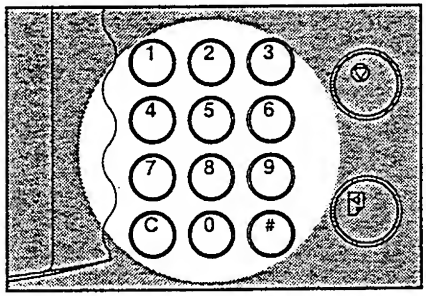
Entering the lengths of the original and print paper

1 Press the **Directional Magnification** key.



2 Enter the vertical length of the original using the **Number** keys and press the **Enter** key.

3 Enter the horizontal length of the original using the **Number** keys and press the **Enter** key.



4 Enter the vertical length of the print paper using the **Number** keys and press the **Enter** key.

5 Enter the horizontal length of the print paper using the **Number** keys and press the **Enter** key.

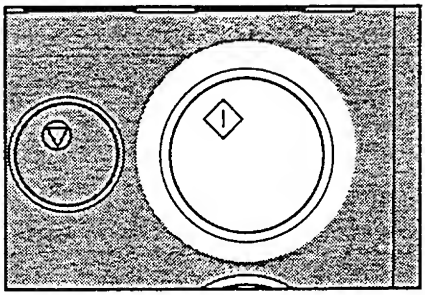
- The machine will select proper reproduction ratios for vertical and horizontal directions.

6 Make sure that the original and the print paper are the correct size.

7 Set your original on the exposure glass or in the optional document feeder.

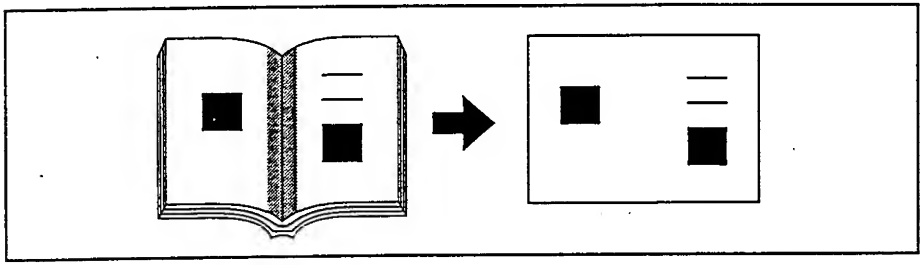
8 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).



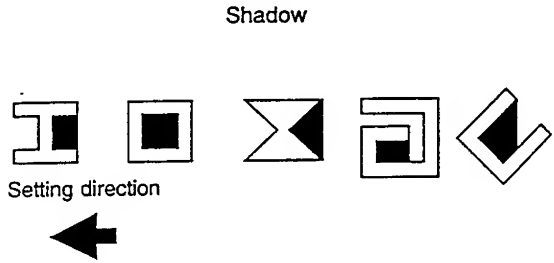
9 Make your prints.

Erasing Center And Edge Margins

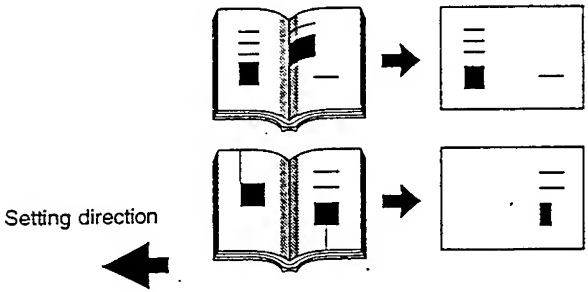


When printing from thick books, or similar originals, the binding margin at the center and the edges might appear on prints. To prevent this, follow the steps on the next page.

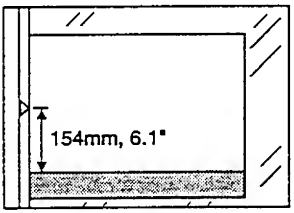
- The 1 mm, 0.02" margins on all four sides of the original will be erased. The width of the margins will change depending on the reduction ratios.
- Shadows near the book edge might not be erased completely.
- If the shapes of the originals are as below, shadows might appear on the prints. In this case, make a master with the platen cover closed.



- If there is a line or solid image on the margin and you erase the center and the edges, the image might be erased as shown below. In this case, use the function described on page 39.

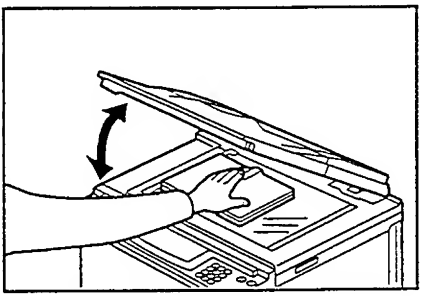


- If you do not press hard on the book while it is scanned, the margin at the center might not be erased completely.
- If the machine is installed under a strong light, such as a fluorescent light, a shadow might appear on the prints. In this case, close the platen cover a little to block the light or move the machine.
- If you set the original on the exposure glass as shown below, the screened image below may not be printed. Lines or solid images that run from the screened image below onto the original may also not be printed.

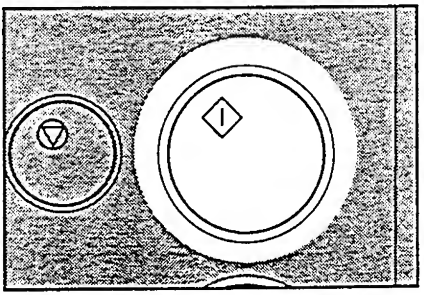


1. Set the book on the exposure glass.

2. Keep the platen cover at an angle of at least 25 degrees with the exposure glass.

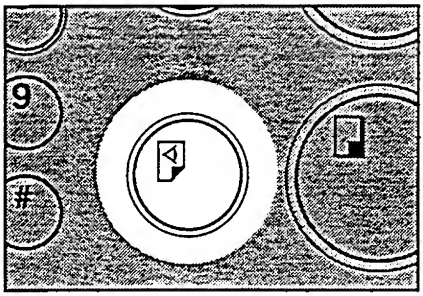


3. Press the **Master Making** key. Press hard on the book with your hand while it is scanned.



4 Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).

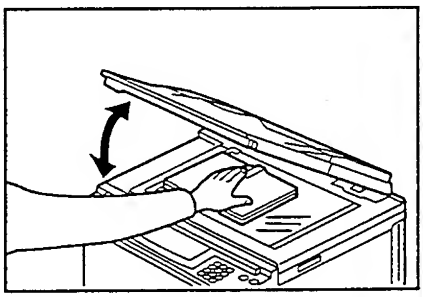


5 Make your prints.

Erasing Margins

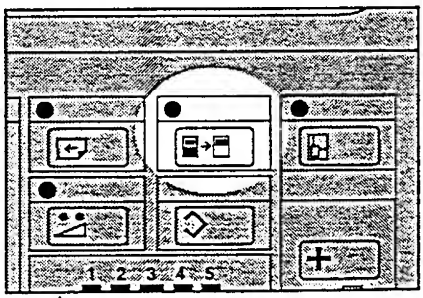
If you want to erase edge margins of a book original, follow the steps below.

1 Set the original on the exposure glass.



2 Enter the number of prints required using the **Number** keys.

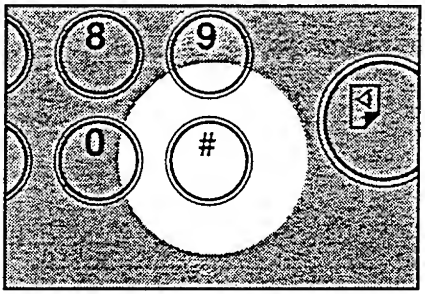
3 Press the **Margin Erase** key.



4 The following message will appear on the guidance display. The paper size and direction will be changed by pressing the **Zoom up/down** keys.

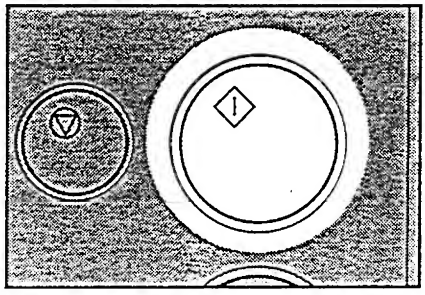
SCROLL BY ZOOM KEY (YYY x XXX MM)

5 When you reach the desired paper size and direction, press the **Enter** key.



6 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).



7 Make your prints.

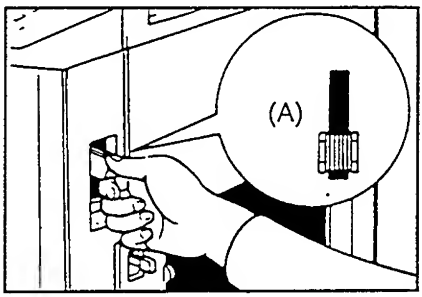
Printing On Thick Or Thin Paper

When you make prints on thick (127.9 to 209.3 g/m², 34 to 55.6 lb) or thin (47.1 to 81.4 g/m², 12.5 to 21.6 lb) paper, perform the following steps.

- The setting of the printing speed should be 1, 2, or 3.

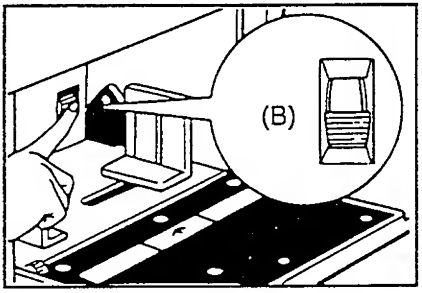
Printing on thick paper

1 When you use paper heavier than 127.9 g/m², 34.0 lb and lighter than 209.3 g/m², 55.6 lb, position the pressure lever (A) to the Thick paper position.



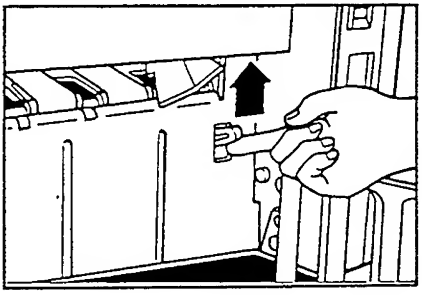
- When you use paper heavier than 64 g/m², 17 lb and lighter than 157.0 g/m², 41.7 lb, position the pressure lever (A) to the standard position.
- In the case of paper smaller than B5, 5 1/2" x 8 1/2" and heavier than 127.9 g/m², 34.0 lb, move the feed roller pressure lever to the standard position.

2 Push the pressure levers (B) down.



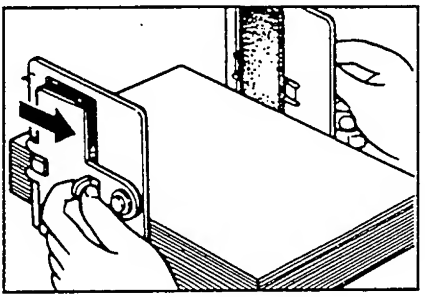
- There are two pressure levers (B). Make sure that both levers are down.
- If dog-eared or wrinkled prints are delivered, push the levers up.

3 Make sure that the wing guide release lever is upper position.

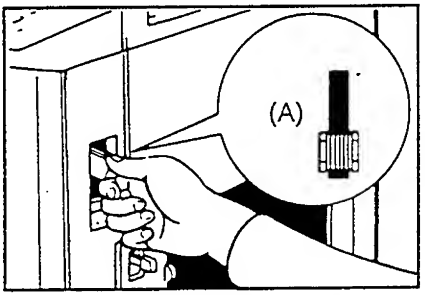


Printing on thin paper

1 Set the side pads (move the side pad levers to as shown opposite).

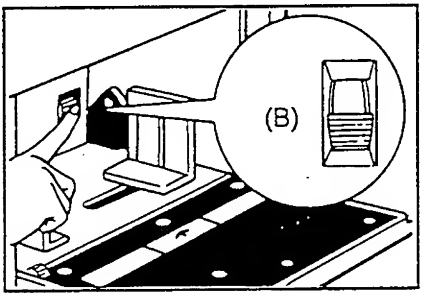


2 Position the pressure lever (A) to the Thin paper position.



3 Push the pressure levers (B) down.

- There are two pressure levers (B). Make sure that both levers are down.
- If dog-eared or wrinkled prints are delivered, push the levers up.



4 If printing on A3, 11" x 17", or larger paper, push up the wing guide release lever. If you want to print on paper smaller than A3 or 11" x 17", push down the release lever.

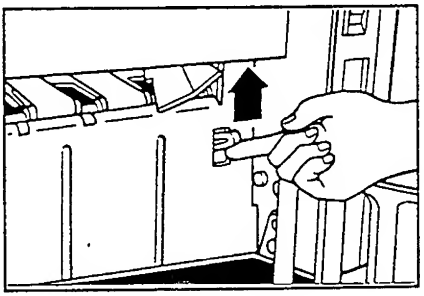
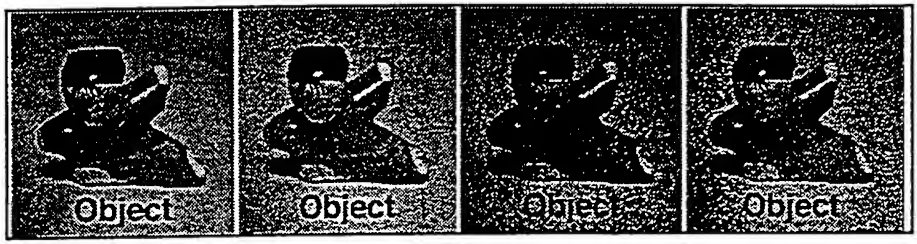


Photo Mode Printing

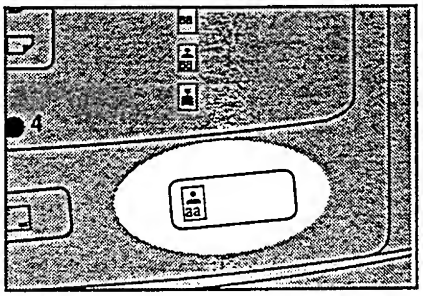


Original Photo mode Line mode Line/Photo mode

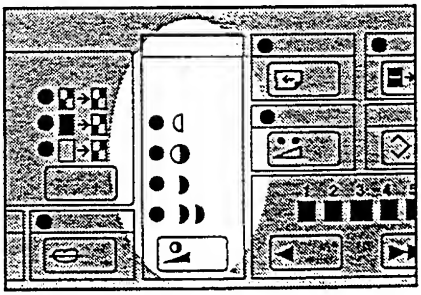
When printing a photograph or a color original, select Photo mode.

- Moire patterns may occur when screened originals are printed.
- When using Photo mode to print originals with both text and photographs, the text will appear lighter. To avoid this, select Line/Photo mode with the **Image Mode** key. Alternatively, use the optional Make-up function to specify Line mode for text areas and Photo mode for photograph areas.
- You can set the machine to print text areas darker in Line/Photo mode with SP mode. ☛ See page 137.

1 Press the **Image Mode** key to select Photo mode.

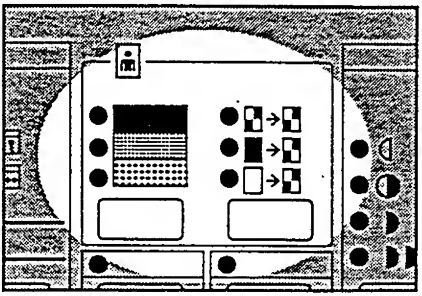


2 Press the **Image Density** key to adjust the image density.



3 If necessary, adjust the screen image by pressing the **Screen** key in Photo or Line/Photo mode.

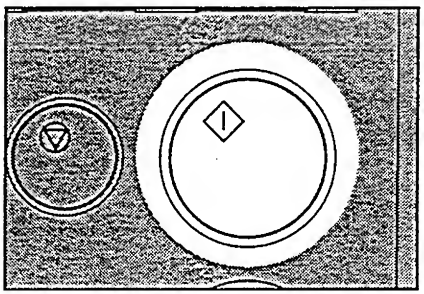
If necessary, adjust the contrast by pressing the **Contrast** key in Photo mode.



4 Set your original on the exposure glass or in the optional document feeder.

5 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).



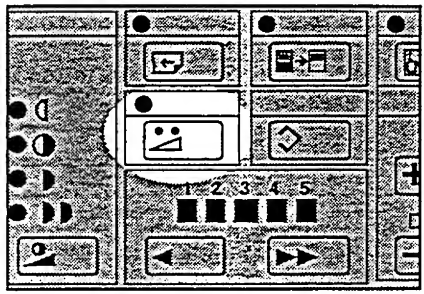
6 Make your prints.

Ink Saving (Economy Mode)

When you want to save ink, select Economy mode.

- The printing density may be light in this mode.
- When you set Tint mode and press the **Economy Mode** key, Tint mode is canceled.

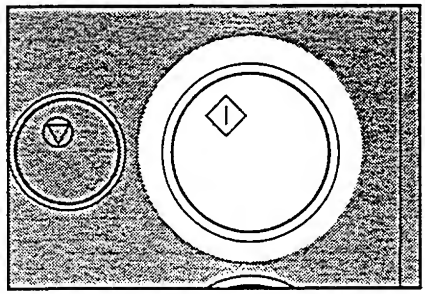
1 Press the **Economy Mode** key.



2 Set your original on the exposure glass or in the optional document feeder.

3 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).



4 Make your prints.

Printing From Several Originals At Once

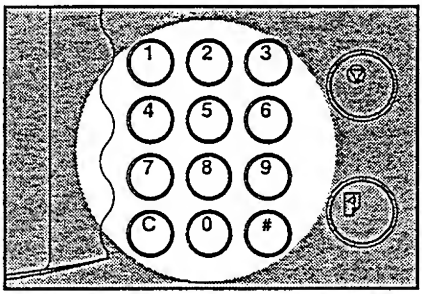
Use the **Auto Cycle** key to process masters and make prints at one stroke.

- When you use the optional document feeder, it is not necessary to place originals one by one. All originals are fed and prints are completed after you press the **Print Start** key.
- If you use the optional tape dispenser, the tape dispenser drops a strip of paper onto the top of the paper stack after the last page of each printing set is fed out to the paper delivery table. This marks the end of each printing group.

1 Set the original face down on the exposure glass or in the optional document feeder.

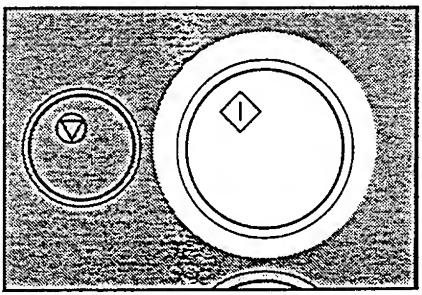
- You can set up to 20 originals into the optional 20 originals document feeder.
- You can set up to 50 originals into the optional 50 originals document feeder.

2 Enter the number of prints required using the **Number** keys.



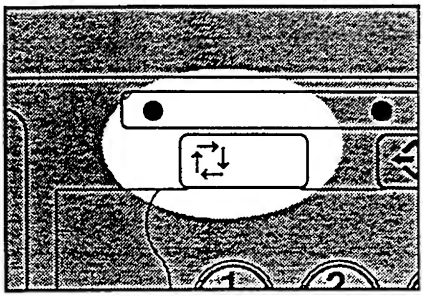
3 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).

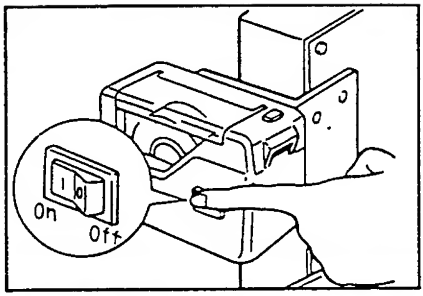


4 Press the **Auto Cycle** key.

- If you press the **Auto Cycle** key, you cannot make proof prints by pressing the **Proof** key.

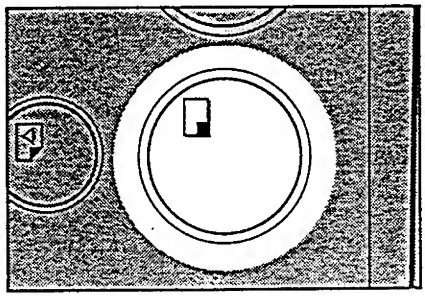


5 If you use the optional tape dispenser, turn on the power switch of the tape dispenser.



6 Press the **Print Start** key.

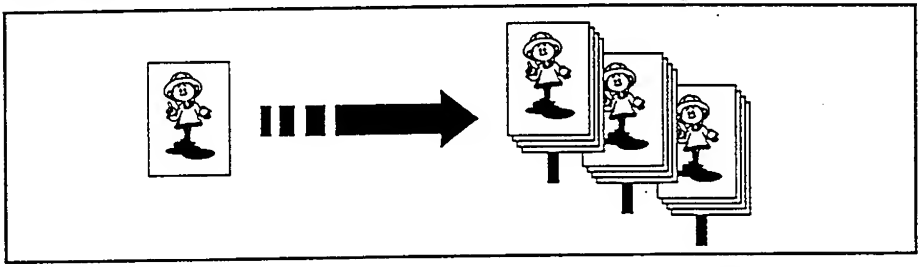
- If you set originals into the optional document feeder, originals are fed and prints are completed automatically.



7 Repeat steps **1** through **3** until all originals are printed when you set originals on the exposure glass.

- After the last page of each set is fed out to the paper delivery table, the optional tape dispenser drops a strip of paper on the top of the paper stack. The next cycle begins.

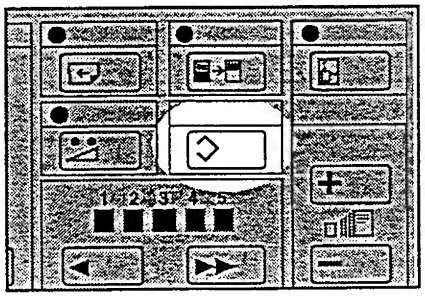
Group Printing From The Same Original (Class Mode)



Use the **Memory/Class** key to make sets of prints from the same original. The same number of prints is made for each set.

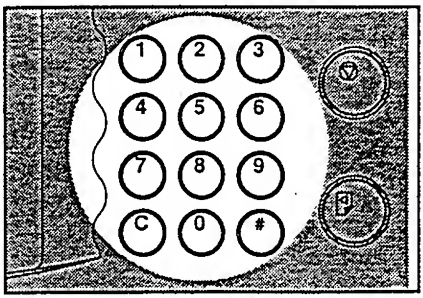
- The optional tape dispenser automatically feeds out strips of paper which separate the printing groups on the paper delivery table.
- Up to 99 sets of prints can be selected for one original.

1 Press the **Memory/Class** key to light the Class indicator.

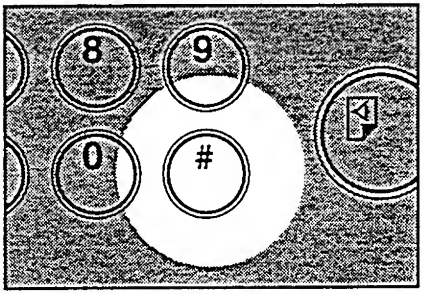


2 Set the original face down on the exposure glass or in the optional document feeder.

3 With the **Number** keys, enter the number of prints for each set to be made from the original.

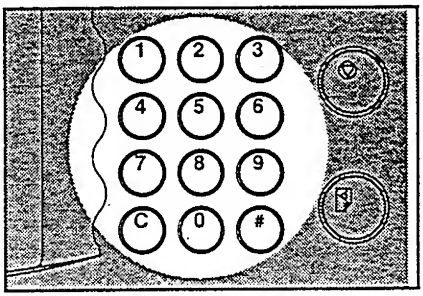


4 Press the **Enter** key.

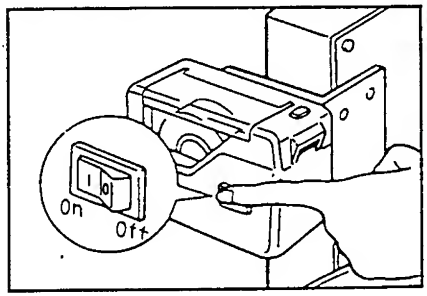


5 With the **Number** keys, enter the desired number of sets.

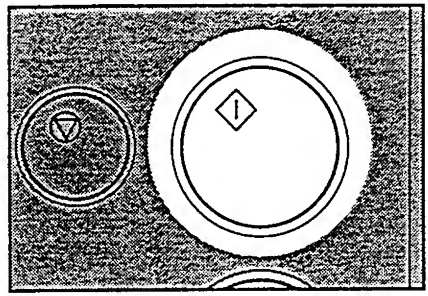
- The maximum number of sets that can be made is 99.



6 Turn on the power switch of the optional tape dispenser.

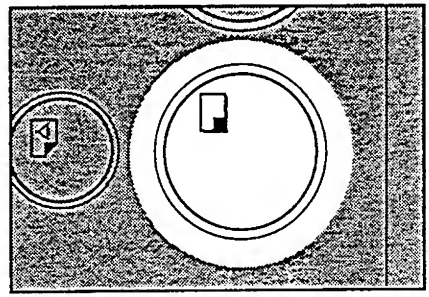


7 Press the **Master Making** key. Check the image position of the trial or proof print.



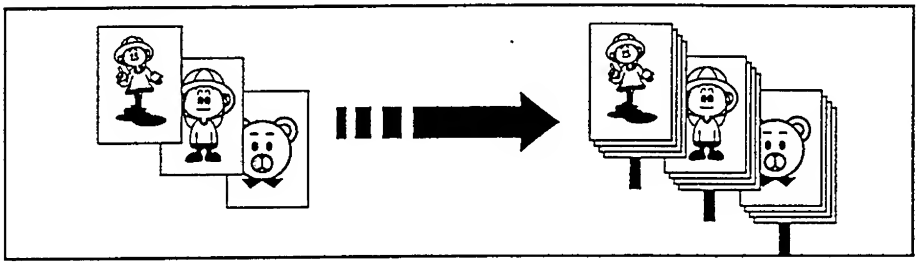
- If the image position is not correct, adjust it using the **Image Position** keys (☛ See page 23) or the side plate fine adjusting dial (☛ See page 24).

8 Make your prints.



- After the last page of each printing set is fed out to the paper delivery table, the tape dispenser drops a strip of paper on the top of the paper stack.
- If the power switch of the optional tape dispenser is turned off or the tape dispenser is not installed in your machine, the group printing cycle stops after each set is delivered. Remove the set of prints from the paper delivery table and press the **Print Start** key to start the next group printing cycle.

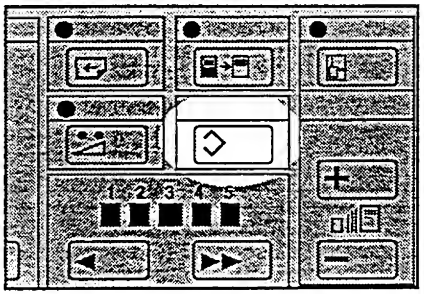
Group Printing From Different Originals (Memory Mode)



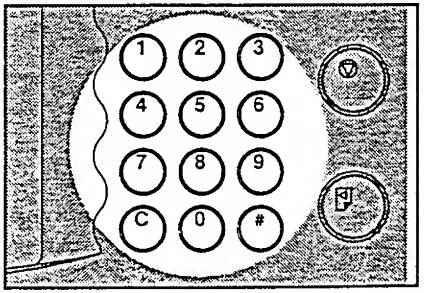
Use the **Memory/Class** key to make sets of prints from different originals.

- With the optional document feeder, you can set several originals and make prints of all of them at once. ☛ See page 76.
- The optional tape dispenser automatically feeds out strips of paper which separate the printing groups on the paper delivery table.

1 Press the **Memory/Class** key to light the Memory indicator.

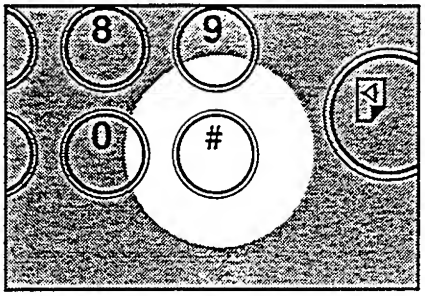


2 With the **Number** keys, enter the desired number of prints for the first original.



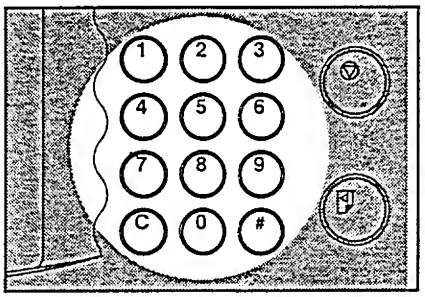
3 Press the **Enter** key. This stores the number of prints to be made for the first original in memory 1.

- When the number of prints in each set is the same, it is not necessary to input the number of prints for each group in memory. Simply select Auto Cycle mode and enter the desired number of prints once.



4 With the **Number** keys, enter the number of prints for the second original.

5 Press the **Enter** key. This stores the number of prints to be made for the second original in memory 2.

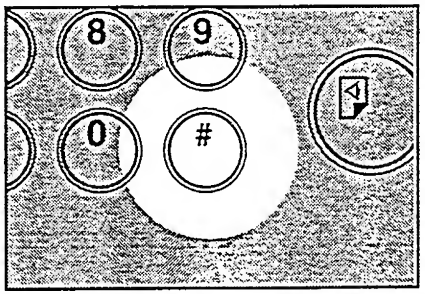


6 Repeat steps **4** and **5** for each original.

- The number of prints for up to 25 originals can be stored.

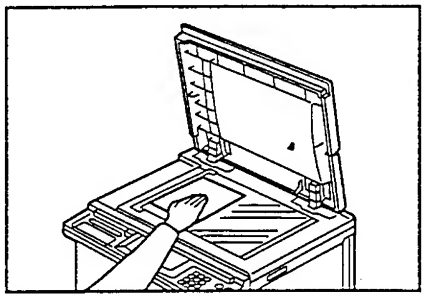
7 Press the **Enter** key again. The memory returns to memory 1.

- If you store the number of prints for 25 originals, the memory number returns to 1. It is not necessary to press the **Enter** key.



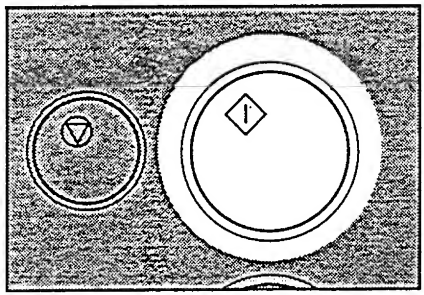
8 Set the first original face down on the exposure glass.

- Set originals one sheet at a time in the same order that you stored them in memory.

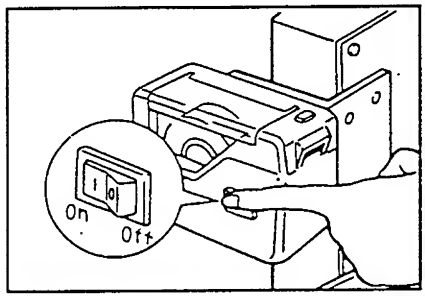


9 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).

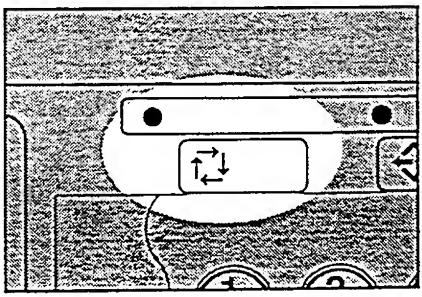


10 Turn on the power switch of the optional tape dispenser.



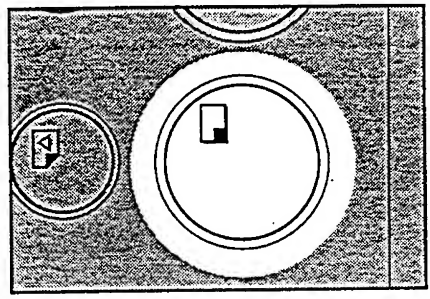
11 Press the **Auto Cycle** key.

- If you press the **Auto Cycle** key, you cannot make proof prints by pressing the **Proof** key.

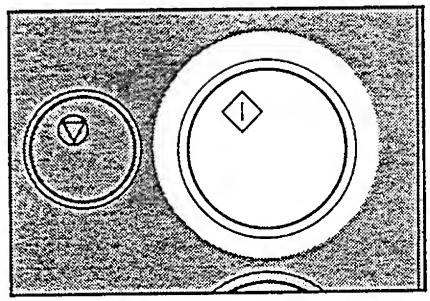


12 Press the **Print Start** key.

After the first set is fed to the paper delivery table, the optional tape dispenser drops a strip of paper on the top of the paper stack.



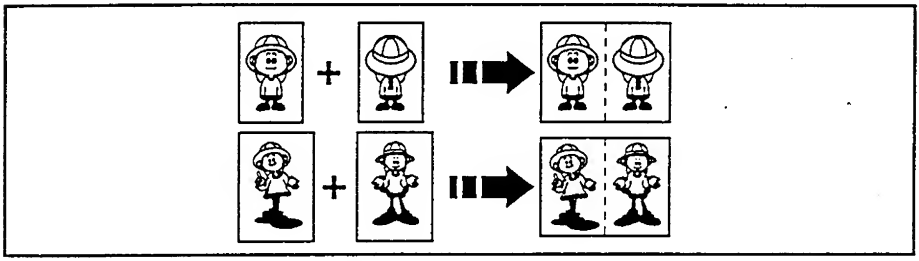
13 After the first set is completed, set the second original on the exposure glass and press the **Master Making** key.



14 Repeat step 13 until you have finished printing.

Multi Copy

Combine 2 images



You can print 2 separate originals on a single sheet of paper. The following tables list the combinations that can be used when combining two images.

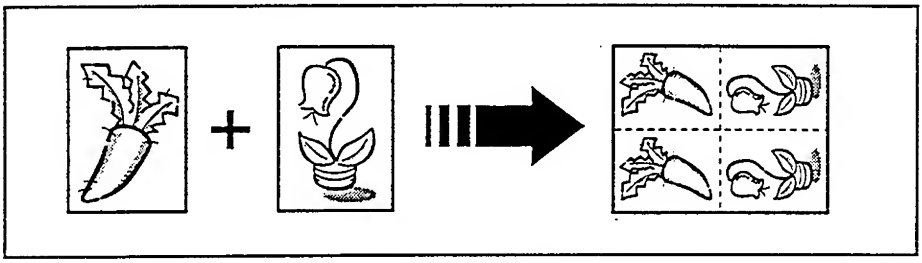
— Metric version —

Original Size / Paper Size	A4 ▯	B5 ▯	A5 ▯	B6 ▯	A6 ▯
A3 ▯	100%	115%	141%	163%	200%
B4 ▯	87%	100%	122%	141%	173%
A4 ▯	71%	82%	100%	115%	141%
B5 ▯	61%	71%	87%	100%	122%
A5 ▯	50%	57%	71%	82%	100%

— Inch version —

Original Size / Paper Size	8 1/2" x 11" ▯	5 1/2" x 8 1/2" ▯
11" x 17" ▯	100%	129%
8 1/2" x 14" ▯	77%	100%
8 1/2" x 11" ▯	65%	100%
5 1/2" x 8 1/2" ▯	50%	65%

Combine 4 images



You can print 4 original images on a single sheet of paper using 2 originals. The images are positioned on the print as shown above. The following tables list the combinations that can be used when combining 4 images.

— Metric version —

Original Size / Paper Size	A3 ▱	B4 ▱	A4 ▱	B5 ▱	A5 ▱	B6 ▱	A6 ▱
A3 ▱	50%	58%	71%	82%	100%	115%	141%
B4 ▱	—	50%	61%	71%	87%	100%	122%
A4 ▱	—	—	50%	58%	71%	82%	100%
B5 ▱	—	—	—	50%	61%	71%	87%
A5 ▱	—	—	—	—	50%	58%	70%
B6 ▱	—	—	—	—	—	50%	61%
A6 ▱	—	—	—	—	—	—	50%

— Inch version —

Original Size / Paper Size	11" x 17" ▱	8 1/2" x 14" ▱	8 1/2" x 11" ▱	5 1/2" x 8 1/2" ▱
11" x 17" ▱	50%	65%	65%	100%
8 1/2" x 14" ▱	—	50%	50%	77%
8 1/2" x 11" ▱	—	—	50%	77%
5 1/2" x 8 1/2" ▱	—	—	—	50%

Notes for multi copy mode

- If originals are longer than the maximum length for combined prints, images do not completely appear on prints. The following table gives the maximum combined original length for each print paper size.

Print paper size	Maximum original length for combining prints
A3	210 mm
B4	182 mm
A4 ▱	148 mm
B5 ▱	128 mm
A5 ▱	105 mm
11" x 17"	216 mm, 8.5"
8 1/2" x 14"	178 mm, 7.0"
8 1/2" x 11" ▱	140 mm, 5.5"
5 1/2" x 8 1/2" ▱	108 mm, 4.3"

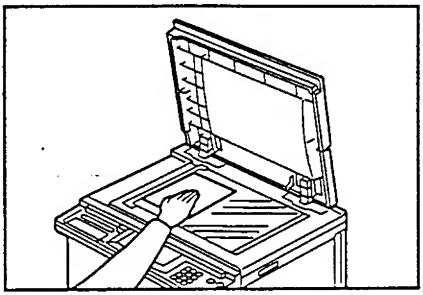
Maximum original length = actual original length x magnification ratio

- Any image closer than 5 mm, 0.2" to the leading edge of the first original will not be printed. Also, any image closer than 4 mm, 0.16" to the leading edge of the second original will not be printed. When the image is too close to the leading edge, use copies of the originals with the image shifted at least 5 mm, 0.2" for the first original (4 mm, 0.16" for the second original) from the leading edge.
- You can select different kinds of image settings for the first and second original.
- When you use the optional document feeder with this function, ☛ see page 74.
- Make sure that the paper feed side plates contact the paper lightly when you use Multi Copy. Otherwise, the two original images will not appear at the proper position on the prints.

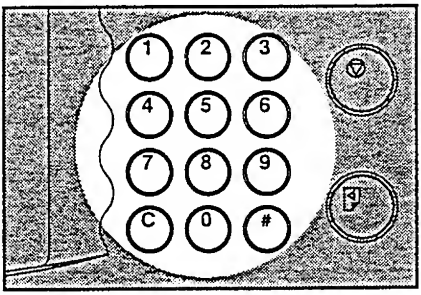
How to make prints in multi copy mode

1 Set the first original face down and with the top toward the operating side.

- The first original will be printed on the leading part of the print.



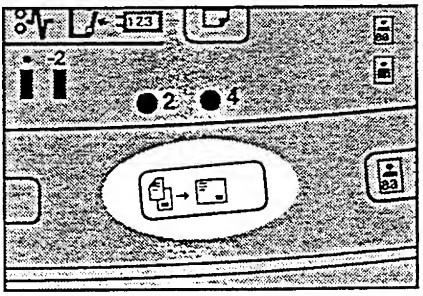
2 Enter the number of prints using the **Number** keys.



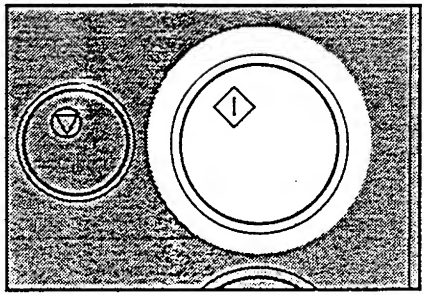
3 Check the print paper size and the reproduction ratio.

4 Then press the **Multi Copy** key either:

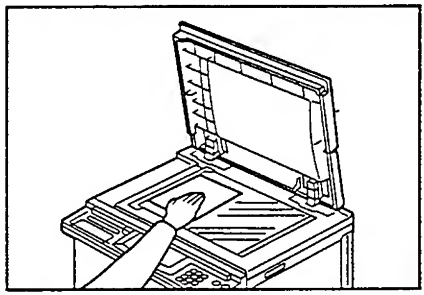
Once to select the Combine 2 Images function.
or
Twice to select the Combine 4 Images function.



5 Press the **Master Making** key.

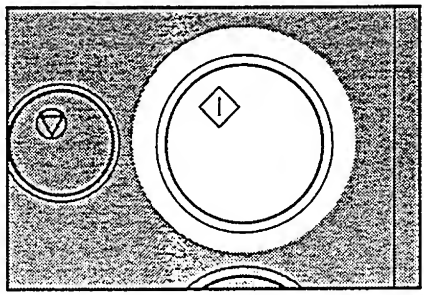


6 The beeper sounds after the first original is on the master. Set the second original face down and with the top toward the operating side.



7 Press the **Master Making** key. Check the image position of the trial or proof print.

- If the image position is not correct, adjust it using the **Image Position** keys (☛ See page 23) or the side plate fine adjusting dial. (☛ See page 24.)



8 Make your prints.

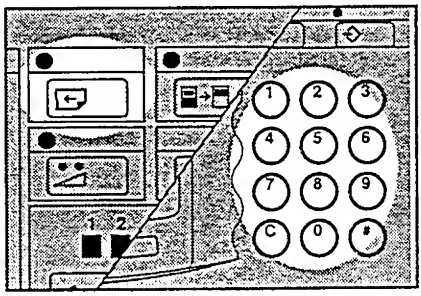
Skip Feed Printing (Skip Feed Mode)

If the backs of prints are dirty, you can increase the time between two prints using the **Skip Feed** key. In the default setting, when one sheet of paper is fed the drum rotates once. However, you can select the number of rotations of the drum. This gives you the chance to remove prints one by one from the paper delivery table or insert one sheet of paper between two prints. If you use this function, you can also use paper longer than 432 mm, 17.0" in spite of the maximum length limitations of paper.

- The maximum length of paper in Skip Feed mode is 460 mm, 18.1".
- When you use paper longer than 432 mm, 17.0", completed prints will not be delivered to the paper delivery table properly, so lower the end plate and receive completed prints by hand.

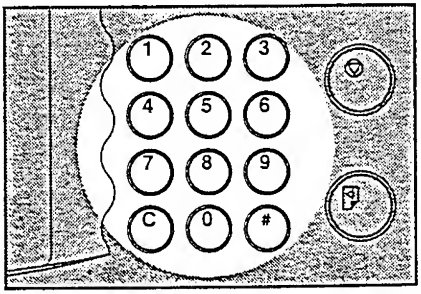
1 Set your original on the exposure glass or in the optional document feeder.

2 While pressing the **Skip Feed** key, select the number of rotations of the drum while one sheet of paper is fed, using the **Number** key.

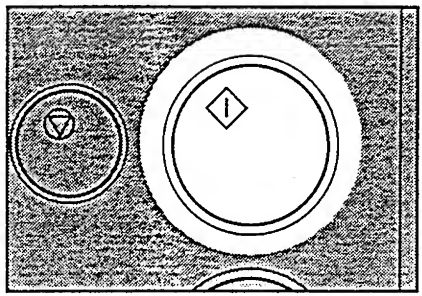


- You can select from 1 to 9 rotations.
- The beeper sounds after you set the number of rotations.

3 Release the **Skip Feed** key and enter the number of prints using the **Number** keys.



4 Press the **Master Making** key. Check the image position of the trial or proof print.



- If the image position is not correct, adjust it using the **Image Position** keys (☛ see page 23) or the side plate fine adjusting dial (☛ see page 24).

5 Make your prints.